

Appendix G

Category 4 Waters Fact Sheets

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Loudoun
STREAM NAME: Catoctin Creek
HYDROLOGIC UNIT: 02070008
TMDL ID: VAN-A02R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 7.2 - Miles
INITIAL LISTING: 1994 **TMDL SCHEDULE:** 2002
UPSTREAM LIMIT:

DESCRIPTION: Confluence of Milltown Creek

RIVER MILE: 7.20

LATITUDE: 39.24056

LONGITUDE: -77.59639

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with the Potomac River

RIVER MILE: 0.00

LATITUDE: 39.27611

LONGITUDE: -77.55139

Segment begins at the confluence of Milltown Creek to Catoctin Creek, approximately 1.2 rivermiles downstream of Route 673, and continues downstream to its confluence with the Potomac River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use

IMPAIRMENT CAUSE: Fecal Coliform (1994)

This segment was initially listed in 1994 for a swimming use impairment due to fecal coliform bacteria exceedances. A fecal coliform TMDL for the Catoctin Creek watershed was submitted to the U.S. EPA on April 29, 2002, and approved May 31, 2002. This segment was assessed as fully supporting of the Recreation Use goal for the 2004 assessment cycle. This segment was assessed as fully supporting the swimming use for the 2004 assessment cycle with a fecal coliform bacteria exceedance rate of 7.9%.

IMPAIRMENT SOURCE: NPS

A fecal coliform TMDL for the Catoctin Creek watershed was submitted to the U.S. EPA on April 29, 2002 and approved May 31, 2002. The sources of fecal coliform bacteria requiring reductions are livestock and wildlife waste delivered directly to the stream, and human contributions from straight pipes.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Loudoun
STREAM NAME: North Fork Catoctin Creek
HYDROLOGIC UNIT: 02070008
TMDL ID: VAN-A02R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 4.12 - Miles
INITIAL LISTING: 1994 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: Confluence of an unnamed tributary to North Fork Catoctin Creek

RIVER MILE: 4.12

LATITUDE: 39.19306

LONGITUDE: -77.67306

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with Catoctin Creek

RIVER MILE: 0.00

LATITUDE: 39.20944

LONGITUDE: -77.62167

Segment begins at the confluence of an unnamed tributary to North Fork Catoctin Creek, approximately 0.2 rivermiles downstream from Rt. 278 bridge, and continues downstream to its confluence with Catoctin Creek. The segment length was shortened from the 1998 303(d) listing to account for upstream special study monitoring stations on the North Fork Catoctin Creek.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform (1994)

Sufficient exceedances of the instantaneous fecal coliform bacteria criterion (6 of 16 samples - 37.5%) were recorded at DEQ's ambient water quality monitoring station 1ANOC000.42 at the Route 681 bridge to assess this stream segment as not supporting of the Recreation Use goal for the 2004 water quality assessment.

In addition, biological monitoring data from citizen monitoring station 1ANOC-1-LWC finds a medium probability of adverse conditions for biota.

IMPAIRMENT SOURCE: NPS

A fecal coliform TMDL for the Catoctin Creek watershed was submitted to the U.S. EPA on April 29, 2002 and approved May 31, 2002. The sources of fecal coliform bacteria requiring reductions are livestock and wildlife waste delivered directly to the stream, and human contributions from straight pipes.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Loudoun
STREAM NAME: North Fork Catoctin Creek
HYDROLOGIC UNIT: 02070008
TMDL ID: VAN-A02R-04
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 2.45 - Miles
INITIAL LISTING: 1994 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: Confluence of an unnamed tributary to North Fork Catoctin Creek

RIVER MILE: 9.73

LATITUDE: 39.20119

LONGITUDE: -77.74186

DOWNSTREAM LIMIT:

DESCRIPTION: An unnamed impoundment

RIVER MILE: 7.28

LATITUDE: 39.18783

LONGITUDE: -77.70794

Segment begins at the confluence of an unnamed tributary to North Fork Catoctin Creek, approximately 0.8 rivermiles upstream of Route 719, near Hillsboro, downstream 2.45 rivermiles to an unnamed impoundment.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform (1994)

Sufficient exceedances of the instantaneous fecal coliform bacteria criterion (4 of 13 samples - 30.8%) were recorded at DEQ's ambient water quality monitoring station 1ANOC009.13 at the Route 690 bridge to assess this stream segment as not supporting of the Recreation Use goal for the 2004 water quality assessment.

This segment was listed in the 1998 303(d) report for a swimming use impairment. Special study station 1ANOC09.13 was added as a special study based on the 1998 303(d) listing of North Fork Catoctin Creek.

IMPAIRMENT SOURCE: NPS

A fecal coliform TMDL for the Catoctin Creek watershed was submitted to the U.S. EPA on April 29, 2002 and approved May 31, 2002. The sources of fecal coliform bacteria requiring reductions are livestock and wildlife waste delivered directly to the stream, and human contributions from straight pipes.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Alexandria, Arlington, Falls Church, Fairfax
STREAM NAME: Four Mile Run
HYDROLOGIC UNIT: 02070010
TMDL ID: VAN-A12R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 7.88 - Miles
INITIAL LISTING: 1994 **TMDL SCHEDULE:** 2002
UPSTREAM LIMIT:

DESCRIPTION: Headwaters of Four Mile Run

RIVER MILE: 9.34

LATITUDE: 38.89889

LONGITUDE: -77.17222

DOWNSTREAM LIMIT:

DESCRIPTION: Upstream of Arlington Ridge Road Bridge

RIVER MILE: 1.46

LATITUDE: 38.84389

LONGITUDE: -77.06972

Segment begins at the headwaters of Four Mile Run and continues downstream to the end of the free-flowing waters at rivermile 1.46 (approximately), roughly 0.27 river miles upstream of Arlington Ridge Road bridge.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform (1994)

Sufficient exceedances of the instantaneous fecal coliform bacteria criterion (7 of 16 samples - 43.8%) were recorded at DEQ's ambient water quality monitoring station 1AFOU004.22 at the Route 244 bridge to assess this stream segment as not supporting of the Recreation Use goal for the 2004 water quality assessment.

IMPAIRMENT SOURCE: NPS

A fecal coliform TMDL was developed for the free-flowing waters of Four Mile Run, and was submitted to the U.S. EPA on April 29, 2002 and approved May 31, 2002. The sources of fecal coliform bacteria requiring reductions are human sources including leaking sewer lines and illicit sewer connections, dog waste, and wildlife waste.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Fairfax
STREAM NAME: Accotink Creek
HYDROLOGIC UNIT: 02070010
TMDL ID: VAN-A15R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 4.8 - Miles
INITIAL LISTING: 1998 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: Confluence of Crook Branch
RIVER MILE: 18.55
LATITUDE: 38.84639 **LONGITUDE:** -77.23889

DOWNSTREAM LIMIT:

DESCRIPTION: Start of Lake Accotink
RIVER MILE: 13.75
LATITUDE: 38.80278 **LONGITUDE:** -77.23111

Segment begins at the confluence of Crook Branch and Accotink Creek, upstream of the Route 846 bridge, and continues downstream to the start of Lake Accotink.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform (1998), e Coli (2004)

Exceedances of the fecal coliform bacteria instantaneous criterion were recorded in 57 of 92 samples (62.0%) collected at USGS station 01654000 at Route 620 (Braddock Road). Exceedances of the e coli bacteria instantaneous criterion were recorded in 22 of 23 samples (95.7%) at the same location. As a result, this segment was assessed as not supporting of the Recreation Use goal for the 2004 water quality assessment.

DEQ maintains an ambient water quality monitoring station (1AACO014.57) at the Route 620 bridge. Four of 15 (26.7%) fecal coliform exceedances were recorded at this station during the 2004 water quality assessment period.

The fecal coliform bacteria criteria no longer apply in this segment as more than 12 e coli samples have collected. The e coli bacteria criteria only apply. The listing of the fecal coliform exceedance rates is for informational purposes.

In addition, citizen monitoring at stations 1AACO-AC6-SOS and 1AACO-AC2-SOS both find a high probability of adverse conditions for biota.

IMPAIRMENT SOURCE: NPS

A fecal coliform TMDL for Accotink Creek above Lake Accotink was developed and submitted to the U.S. EPA on April 26, 2002 and approved May 31, 2002. The sources of fecal coliform bacteria requiring reductions are dog and goose waste deposited on pervious and impervious surfaces, cat and duck waste deposited on pervious surfaces, and human sources including failing septic systems, leaking sewer lines and illicit sewer connections.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Fairfax City, Fairfax
STREAM NAME: Accotink Creek
HYDROLOGIC UNIT: 02070010
TMDL ID: VAN-A15R-03
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 1.19 - Miles
INITIAL LISTING: 2002 **TMDL SCHEDULE:** 2002
UPSTREAM LIMIT:

DESCRIPTION: Confluence of Daniels Run

RIVER MILE: 21.18

LATITUDE: 38.85972

LONGITUDE: -77.27583

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence of Bear Branch

RIVER MILE: 19.99

LATITUDE: 38.85917

LONGITUDE: -77.25611

Segment starts at confluence of Daniels Run to Accotink Creek in the City of Fairfax and extends downstream to the confluence of Bear Branch to Accotink Creek.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform (2002), e Coli (2004)

Exceedances of the instantaneous fecal coliform bacteria criterion were recorded in 13 of 15 samples (86.7%), and exceedances of the instantaneous e coli bacteria criterion were recorded in 13 of 13 samples (100%) collected at USGS station 01653900 at Picket Road. As a result, this segment was assessed as not supporting of the Recreation Use goal for the 2004 water quality assessment.

The fecal coliform bacteria criteria no longer apply in this segment as more than 12 e coli samples have collected. The e coli bacteria criteria only apply. The listing of the fecal coliform exceedance rates is for informational purposes.

IMPAIRMENT SOURCE: NPS

A fecal coliform TMDL for Accotink Creek above Lake Accotink was developed and submitted to the U.S. EPA on April 26, 2002 and approved May 31, 2002. The sources of fecal coliform bacteria requiring reductions are dog and goose waste deposited on pervious and impervious surfaces, cat and duck waste deposited on pervious surfaces, and human sources including failing septic systems, leaking sewer lines and illicit sewer connections.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Clarke, Frederick
STREAM NAME: Opequon Creek
HYDROLOGIC UNIT: 02070004
TMDL ID: VAV-B08R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 24.88 - Miles
INITIAL LISTING: 1998 **TMDL SCHEDULE:** 2010

UPSTREAM LIMIT:

DESCRIPTION: Segment begins at Opequon Creek's headwaters
RIVER MILE: 57.26
LATITUDE: 39.17000 **LONGITUDE:** -78.26000

DOWNSTREAM LIMIT:

DESCRIPTION: Segment ends at the confluence with Abrams Creek
RIVER MILE: 32.38
LATITUDE: 39.18079 **LONGITUDE:** -78.07427

The segment begins at Opequon Creek's headwaters and continues downstream to the confluence with Abrams Creek

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting, Aquatic Life Use - Attachment B

IMPAIRMENT CAUSE:

 Fecal Coliform, General Standard (Benthic)

1AOPE036.13 - 8 Fecal Violations out of 54 samples and 1AOPE025.10 - 5 Fecal Coliform violations out of 42 samples during the 2004 assessment period. A TMDL has been approved for this parameter and is waiting EPA approval. 1AOPE36.13 - Aquatic life use was fully supporting during the 2004 assessment period. The site was listed in Attachment B of the plaintiffs list, and EPA will not allow delisting.

1AOPE029.61 was assessed as Moderately Impaired for the 2004 assessment cycle. 1AOPE034.53 was fully supporting of the Aquatic Life Use in 1998 but EPA mistakenly allowed it to be placed on Appendix B of the Consent Decree. It has not been surveyed since the 1998 assessment cycle. A TMDL has been developed for this parameter and is waiting EPA approval.

IMPAIRMENT SOURCE:

 NPS - Urban, Attachment B

The primary source is NPS urban runoff.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Frederick, Winchester
STREAM NAME: Abrams Creek
HYDROLOGIC UNIT: 02070004
TMDL ID: VAV-B09R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 10.8 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2004
UPSTREAM LIMIT:

DESCRIPTION: Begins at the headwaters

RIVER MILE: 10.80

LATITUDE: 39.20000

LONGITUDE: -78.22000

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with Opequon Creek

RIVER MILE: 0.00

LATITUDE: 39.18079

LONGITUDE: -78.07427

Segment begins at the headwaters and continues downstream to the confluence with Opequon Creek.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, Recreation Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic), Fecal Coliform

1AABR00.78 had a moderately impaired benthic rating during the 2004 assessment period.

1AABR000.78 - 12 fecal coliform violations out of 54 samples during the 2004 assessment period.

IMPAIRMENT SOURCE: NPS - Urban, NPS

The primary source of the pollutants is NPS urban runoff.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Clarke, Frederick
STREAM NAME: Opequon Creek
HYDROLOGIC UNIT: 02070004
TMDL ID: VAV-B09R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 8.82 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2010
UPSTREAM LIMIT:

DESCRIPTION: Confluence with Abrams Creek

RIVER MILE: 32.38

LATITUDE: 39.18079

LONGITUDE: -78.07427

DOWNSTREAM LIMIT:

DESCRIPTION: Segment end at the VA/WVA State Line

RIVER MILE: 23.56

LATITUDE: 39.26472

LONGITUDE: -78.03333

Segment begins at Opequon Creek's confluence with Abrams Creek and continues downstream to the VA/W.VA state line.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, Recreation Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic), Fecal Coliform

1AOPE029.61 had an overall benthic assessment of slightly impaired, but a moderate impairment was observed within the last two samples. 1AOPE025.10 - 5 Fecal Coliform violations out of 42 samples.

IMPAIRMENT SOURCE: NPS - Urban, NPS

The source of the benthic impairment is believed to be NPS urban and agricultural runoff. The source of the bacterial impairment is believed to be NPS.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Augusta
STREAM NAME: Cockran Spring
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-B10R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 0.8 - Miles
INITIAL LISTING: 1996
TMDL SCHEDULE: 2002
UPSTREAM LIMIT:

DESCRIPTION: Begins at the discharge

RIVER MILE: 0.80

LATITUDE: 38.05361

LONGITUDE: -79.25444

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with Middle River

RIVER MILE: 0.00

LATITUDE: 38.05611

LONGITUDE: -79.26833

Segment begins at the Castaline Trout Farm discharge and continues downstream until the confluence with Middle River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting 1998, 1

IMPAIRMENT CAUSE: General Standard (Benthic) 1998

A benthic survey in the Spring of 1995 indicated severely impaired waters below the Casta Line Trout Farm discharge. As a result the 0.80 miles of the stream below the discharge was assessed as not-supporting the Clean Water Act's Aquatic Life Use Support goal for the 1998 305(b) report. The exact cause of the impairment is believed to be organic enrichment and solids deposition. No follow-up sampling was done during the 2004 assessment period. A TMDL was developed and approved by EPA for this parameter.

IMPAIRMENT SOURCE: PS - Trout Farm - Castaline 1998

The primary source of the benthic impairment is the Trout Farm discharge.

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RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Augusta
STREAM NAME: Falls Hollow
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-B11R-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 3.52 - Miles
INITIAL LISTING: 2004
TMDL SCHEDULE:
UPSTREAM LIMIT:

DESCRIPTION: Segment begins at the headwaters
RIVER MILE: 3.52
LATITUDE: 38.16563
LONGITUDE: -79.31055

DOWNSTREAM LIMIT:

DESCRIPTION: Segment ends at the confluence with Buffalo Branch
RIVER MILE: 0.00
LATITUDE: 38.17983
LONGITUDE: -79.25117

The segment begins at Falls Hollow's headwaters and continues downstream to its confluence with Buffalo Branch.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

USFS Monitoring Station 1003 had a Moderately Impaired assessment for the 2004 assessment cycle

IMPAIRMENT SOURCE: Natural Conditions (Drought related)

The source is natural conditions (drought related)

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Augusta
STREAM NAME: Tunnel Hollow
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-B13R-03
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 0.95 - Miles
INITIAL LISTING: 2004
TMDL SCHEDULE:
UPSTREAM LIMIT:

DESCRIPTION: Segment begins at the headwaters
RIVER MILE: 2.06
LATITUDE: 38.32459
LONGITUDE: -79.19846

DOWNSTREAM LIMIT:

DESCRIPTION: USFS monitoring station 2021
RIVER MILE: 1.11
LATITUDE: 38.31401
LONGITUDE: -79.19130

Segment begins at Tunnel Hollow's headwaters and continues downstream to USFS monitoring station 2021

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

USFS 2021 - Had a Moderately Impaired Benthic assessment during the 2004 assessment period.

IMPAIRMENT SOURCE: Natural Conditions (Drought related)

The source is natural conditions (drought related)

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Augusta
STREAM NAME: Elkhorn Lake
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-B16L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 55 - Acres
INITIAL LISTING: 2004
TMDL SCHEDULE:
UPSTREAM LIMIT:

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

DOWNSTREAM LIMIT:

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

1BNTH045.36 - 17 DO violations out of 44 samples below the thermocline.

IMPAIRMENT SOURCE: Natural thermal stratification

The source is natural thermal stratification. The trophic status index indicated that the low DO in the hypolimnion was not due to nutrient enrichment from anthropogenic sources.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Rockingham
STREAM NAME: Honey Run
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-B21R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 3.07 - Miles
INITIAL LISTING: 2004 **TMDL SCHEDULE:** 2016
UPSTREAM LIMIT:

DESCRIPTION: Begins at the headwaters

RIVER MILE: 3.07

LATITUDE: 38.45684

LONGITUDE: -79.03157

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with Dry River

RIVER MILE: 0.00

LATITUDE: 38.42199

LONGITUDE: -78.98278

Segment begins at Honey Run's headwaters and continues downstream to its confluence with Dry River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform

1BDUR000.02 - 3 Fecal Coliform violations out of 4 samples during the 2004 assessment cycle.

IMPAIRMENT SOURCE: NPS - Agriculture/Wildlife

The primary source of the fecal coliform bacteria is from NPS agricultural and wildlife runoff.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Harrisonburg, Rockingham
STREAM NAME: Cooks Creek
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-B25R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 17.73 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: Begins at the headwaters
RIVER MILE: 13.69
LATITUDE: 38.48889 **LONGITUDE:** -78.93528

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with North River
RIVER MILE: 0.00
LATITUDE: 38.34583 **LONGITUDE:** -78.94000

Segment begins at Cooks Creek's headwaters and continues downstream to its confluence with the North River. The segment also includes four miles of an unnamed tributary locally known as Sunset Heights Branch.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, Recreation Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic), Pathogens

1BCKS003.04 - Was moderately impaired during the 2004 assessment period. The exact cause of the impairment is not known. A TMDL for this parameter has been approved by EPA.

1BCKS003.10 - 24 E. Coli standard violations out of 31 samples during the 2004 assessment period. A TMDL for this parameter has been approved by EPA.

1BXB004.00 - 2 fecal coliform violations out of 2 samples during the 2004 assessment cycle.

1BSLV000.00 - Had 2 fecal coliform standard violations out of 3 samples during the 2004 assessment period. These stations are part of the Cooks Creek fecal coliform TMDL approved by EPA

IMPAIRMENT SOURCE: NPS - Agriculture, NPS - Agriculture/Wildlife

The primary source of the benthic impairment is sediment and nutrients from NPS runoff. A TMDL has been approved by EPA for this parameter.

The primary source of E. Coli & Fecal Coliform is from NPS agricultural and wildlife runoff a TMDL has been approved by EPA for this parameter.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Harrisonburg, Rockingham
STREAM NAME: Blacks Run
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-B26R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 10.73 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: Begins at the headwaters
RIVER MILE: 10.73
LATITUDE: 38.48000 **LONGITUDE:** -78.86194

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with Cooks Creek
RIVER MILE: 0.00
LATITUDE: 38.37222 **LONGITUDE:** -78.93361

Segment begins at Blacks Run's headwaters and continues downstream until its confluence with Cooks Creek.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, Recreation Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic), Fecal Coliform

1BBLK005.62 - Severely Impaired Benthic rating during the 2004 assessment cycle. 1BBLK000.08 had a Moderately Impaired Benthic rating during the 2004 assessment cycle. The exact cause of the Benthic impairments is unknown. A TMDL has been approved by EPA for this parameter.

1BBLK000.38 - Had 27 E. Coli values exceed the standard out of 32 samples during the 2004 assessment cycle.

01621395 - Had five Fecal Coliform values exceed the standard out of five samples during the 2004 assessment cycle.

01621397 - Had nine Fecal Coliform values exceed the standard out of 12 samples during the 2004 assessment cycle.

01621410 - Had 13 E Coli values exceed the standard out of 13 samples during the 2004 assessment cycle.

01621425 - Had five Fecal Coliform values exceed the standard out of eight samples during the 2004 assessment cycle.

01621440 - Had eight Fecal Coliform values exceed the standard out of eight samples during the 2004 assessment cycle.

01621470 - Had 20 E Coli values exceed the standard out of 22 samples during the 2004 assessment cycle.

EPA has approved a Pathogen TMDL for Blacks Run.

IMPAIRMENT SOURCE: NPS - Agriculture/Urban/Wildlife/Human, NPS - Agriculture/Urban

The primary source of fecal coliform is from NPS urban and agricultural runoff.

Fact Sheets for Category 4 Waters

The source of the benthic impairment is sediment from NPS urban and agricultural activities.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Rockingham
STREAM NAME: Pleasant Run
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-B27R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 6.31 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2004

UPSTREAM LIMIT:

DESCRIPTION: Segment begins at the headwaters
RIVER MILE: 6.31
LATITUDE: 38.40111 **LONGITUDE:** -78.85611

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with North River
RIVER MILE: 0.00
LATITUDE: 38.34500 **LONGITUDE:** -78.92556

Segment begins at Pleasant Run's headwaters and continues downstream to its confluence with North River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, Recreation Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic), Fecal Coliform

1BPLR000.08 - Severely Impaired Benthic Rating during the 2002 assessment period. The exact cause of the severely impaired rating is not known. A TMDL for this parameter has been approved by EPA.

1BPLR000.16 - 47 fecal coliform violations out of 61 samples during the 2002 assessment period. A TMDL has been approved by EPA for fecal coliform.

1BPLR000.16 - 17 total phosphorus values exceeded the screening value out of 61 samples during the 2002 assessment period resulting in a threatened assessment.

1BPLR000.76 & 1BPLR001.30 - 2 fecal coliform violations out of 2 samples. These stations were part of the TMDL study.

IMPAIRMENT SOURCE: NPS - Agriculture, NPS - Agriculture/Wildlife

The primary source of the benthic impairment is sediment and nutrients from NPS agricultural activities.

The primary source of fecal coliform is from NPS agricultural and wildlife runoff.

The primary source of total phosphorus is from NPS agricultural activities.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Augusta
STREAM NAME: Naked Creek
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-B28R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 6.74 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: Begins at the headwaters
RIVER MILE: 6.74
LATITUDE: 38.27000 **LONGITUDE:** -79.00000

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with North River
RIVER MILE: 0.00
LATITUDE: 38.30444 **LONGITUDE:** -78.91444

Segment begins at Naked Creek's headwaters and continues downstream to its confluence with North River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting, 1

IMPAIRMENT CAUSE: Fecal Coliform

1BNKD000.80 - 19 fecal coliform violations out of 25 samples during the 2004 assessment period. A TMDL for this parameter has been approved by EPA.

IMPAIRMENT SOURCE: NPS - Agriculture/Wildlife

The primary source of fecal coliform is from NPS agricultural and wildlife runoff.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Rockingham
STREAM NAME: Mill Creek
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-B29R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 8.73 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2004

UPSTREAM LIMIT:

DESCRIPTION: Begins at the headwaters
RIVER MILE: 5.95
LATITUDE: 38.36222 **LONGITUDE:** -78.85444

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with North River
RIVER MILE: 0.00
LATITUDE: 38.30472 **LONGITUDE:** -78.82194

Segment begins at Mill Creek's headwaters and continues downstream to its confluence with North River. It also includes Congers Creek & Duck Run.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting, Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform, General Standard (Benthic)

1BMIC001.00 - 17 E. Coli violations out of 30 samples exceeded the standard during the 2004 assessment period. A TMDL has been approved by EPA for this parameter.

1BCNG000.03 - 4 fecal coliform violations out of 4 samples. This station (Congers Creek) was part of the Mill Creek fecal coliform TMDL approved by EPA.

1BDKR000.18 - 4 fecal coliform violations out of 4 samples. This station (Duck Run) was part of the Mill Creek fecal coliform TMDL approved by EPA.

1BMIC001.00 - A moderately impaired benthic rating during the 2004 assessment period. A TMDL for the Benthic parameter has been approved by EPA.

IMPAIRMENT SOURCE: NPS - Agriculture/Wildlife, NPS

The primary source of Fecal Coliform and E. Coli is from NPS agricultural and wildlife runoff.

The source of the benthic impairment is sediment and nutrients from NPS runoff.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Augusta
STREAM NAME: Toms Branch
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-B31R-03
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 2.7 - Miles
INITIAL LISTING: 2004 **TMDL SCHEDULE:**

UPSTREAM LIMIT:

DESCRIPTION: Begins at the headwaters
RIVER MILE: 2.7
LATITUDE: 37.96992 **LONGITUDE:** -78.89882

DOWNSTREAM LIMIT:

DESCRIPTION: Ends at its mouth.
RIVER MILE: 0.00
LATITUDE: 37.96391 **LONGITUDE:** -78.94494

Segment begins at the headwaters and ends at its mouth.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

USFS 5104 -Had a Moderately Impaired Benthic Rating during the 2004 assessment cycle.

IMPAIRMENT SOURCE: Natural Conditions (Drought related)

The source is natural conditions (drought related)

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Rockingham
STREAM NAME: Linville Creek
HYDROLOGIC UNIT: 02070006
TMDL ID: VAV-B46R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 13.58 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2004

UPSTREAM LIMIT:

DESCRIPTION: Begins at the headwaters
RIVER MILE: 13.58
LATITUDE: 38.46806 **LONGITUDE:** -78.90139

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with the NF Shenandoah
RIVER MILE: 0.00
LATITUDE: 38.61972 **LONGITUDE:** -78.79444

Segment begins at Linville Creek's headwaters and continues downstream to its confluence with the N.F. Shenandoah River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, Recreation Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic), Fecal Coliform

1BLNV001.22 - 9 E. Coli violations out of 30 samples during the 2004 assessment cycle.

1BLNV006.49 - 6 Fecal Coliform violations out of 12 samples during the 2004 assessment cycle.

1BLNV007.66 - 7 Fecal Coliform violations out of 9 samples during the 2004 assessment cycle.

EPA has approved a pathogen TMDL.

1BLNV000.71 & 1BLNV000.16 - Had moderately impaired benthic ratings during the 2004 assessment cycle. The cause of the impairment is sediment and nutrients. EPA has approved a TMDL for this parameter.

IMPAIRMENT SOURCE: NPS, NPS - Agriculture/Wildlife

The primary source of the E. Coli & Fecal Coliform bacteria is from NPS agricultural and wildlife runoff.

The source of the benthic impairment is believed to be from NPS agricultural runoff

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Rockingham
STREAM NAME: Lacey Spring
HYDROLOGIC UNIT: 02070006
TMDL ID: VAV-B47R-03
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 0.2 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: Shenandoah Fisheries discharge
RIVER MILE: 0.20
LATITUDE: 38.54250 **LONGITUDE:** -78.75306

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with Smith Creek
RIVER MILE: 0.00
LATITUDE: 38.54083 **LONGITUDE:** -78.76028

Segment begins at the Shenandoah Fisheries discharge to Lacey Springs and continues downstream to its confluence with Smith Creek.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, 1

IMPAIRMENT CAUSE: General Standard (Benthic)

A benthic survey in the Spring of 1995 indicated severely impaired waters below the Shenandoah Fisheries discharge. As a result the 0.20 miles of the stream below the discharge was assessed as not supporting the Clean Water Act's Aquatic Life Use Support goal for the 1998 305(b) report. A TMDL for this parameter has been approved by EPA.

IMPAIRMENT SOURCE: PS - Trout Farm - Shen. Fisher

The source is the discharge from Shenandoah Fisheries.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Shenandoah
STREAM NAME: Orndorff Spring Branch
HYDROLOGIC UNIT: 02070006
TMDL ID: VAV-B52R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 0.15 - Miles
INITIAL LISTING: 1998 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: Orndorff Trout Farm discharge
RIVER MILE: 0.15
LATITUDE: 38.99111 **LONGITUDE:** -78.51222

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with Cedar Creek
RIVER MILE: 0.00
LATITUDE: 38.99056 **LONGITUDE:** -78.51167

Segment begins at the Orndorff Trout Farm discharge and continues downstream to the confluence with Cedar Creek.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, 1

IMPAIRMENT CAUSE: General Standard (Benthic)

DEQ's biological monitoring station at river mile 0.01 indicated severe impairment. Therefore 0.15 miles of this stream was assessed as not supporting the Clean Water Act's Aquatic Life Use Support Goal for the 1998 305(b) report. The cause of the impairment below the discharge is organic enrichment and solids deposition. A TMDL has been developed and approved by EPA for this parameter.

IMPAIRMENT SOURCE: PS - Trout Farm - Orndorff

The source is the trout farm.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Frederick
STREAM NAME: Lake Frederick
HYDROLOGIC UNIT: 02070007
TMDL ID: VAV-B56L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 115.2 - Acres
INITIAL LISTING: 2002 **TMDL SCHEDULE:** 2014
UPSTREAM LIMIT:

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

DOWNSTREAM LIMIT:

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen (2002)

1BCRO009.19 - 101 DO Violations out of 128 samples below the thermocline during the 2004 assessment period. 1BCRO009.79 - 10 DO violations out of 26 samples below the thermocline. 1BXCE000.63 - 2 DO violations out of 8 samples below the thermocline.

1BCRO009.79 - 5 DO Violations out of 12 samples below the thermocline during the 2002 assessment period.

7 Chlorophyll a values out of 7 samples were below the screening value at both monitoring stations and 1BXCE000.63 during the 2002 assessment period resulting in a threatened assessment.

IMPAIRMENT SOURCE: Natural Stratification

The source of the low dissolved oxygen is natural thermal stratification. The Trophic Status Index score indicated that the impairment was natural and not due to nutrient enrichment from anthropogenic sources.

The source of the chlorophyll a is unknown.

Fact Sheets for Category 4 Waters

RIVER BASIN: Potomac River & Shenandoah River Basins
CITY/COUNTY: Clarke, Warren
STREAM NAME: S.F. Shenandoah River/N.F. Shenandoah River/S
HYDROLOGIC UNIT: 02070005
TMDL ID: VAV-PCB
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 51.1 - Miles
INITIAL LISTING: 1998 **TMDL SCHEDULE:** 2002
UPSTREAM LIMIT:

DESCRIPTION: Begins at Rt 619 Bridge in Front R.
RIVER MILE: 51.10
LATITUDE: 38.91361 **LONGITUDE:** -78.21000

DOWNSTREAM LIMIT:
DESCRIPTION: Ends at the VA/WVA state line
RIVER MILE: 0.00
LATITUDE: 39.15000 **LONGITUDE:** -77.86000

Segment begins at the Rt 619 bridge over the S.F. Shenandoah River in Front Royal and ends at the Va/WVa state line (river miles 3.5 - 0.00 (S.F. Shenandoah River), 41.62 - 0.00 (Shenandoah River)). A short segment of the lower N.F. Shenandoah River is also included from its mouth upstream to the Passage Creek confluence (5.23 miles).

CLEAN WATER ACT GOAL AND USE SUPPORT:

Fish Consumption Use - Not Supporting

IMPAIRMENT CAUSE: VDH Health Advisory (PCBs)

PCBs have been found in fish tissue and sediments at values high enough for the VDH to recommend that fish not be consumed. A TMDL has been completed and approved by EPA for PCBs.

IMPAIRMENT SOURCE: Legacy

The source of the PCBs was the former Avtex Fibers Plant in Front Royal.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Amherst
STREAM NAME: Graham Creek Reservoir
HYDROLOGIC UNIT: 02080203
TMDL ID: VAC-H04L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 47.58 - Acres
INITIAL LISTING: 2004
TMDL SCHEDULE:
UPSTREAM LIMIT:

DESCRIPTION: Backwaters

RIVER MILE:

LATITUDE: 37.49860

LONGITUDE: -79.16690

DOWNSTREAM LIMIT:

DESCRIPTION: Impoundment Structure

RIVER MILE:

LATITUDE: 37.48970

LONGITUDE: -79.16640

Graham Creek Reservoir from its impounding structure upstream to its backwaters.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

Graham Creek Reservoir was assessed not supporting of the Aquatic Life Use based on low dissolved oxygen below the thermocline at 2-GRA000.40. Graham Creek reservoir is stratified May-October. Trophic State Indices were calculated for the following parameters: Chlorophyll a - 58.50, Total Phosphorous - 45.44 and Secchi Depth - 52.06.

Graham Creek Reservoir is considered mesotrophic and non-impaired based on these calculations.

IMPAIRMENT SOURCE: Hypolimnetic Waters

The low DO is caused by stratification of the lake.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Buckingham, Goochland, Cumberland
STREAM NAME: Willis River
HYDROLOGIC UNIT: 02080205
TMDL ID: VAC-H36R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 61.34 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2002
UPSTREAM LIMIT:

DESCRIPTION: Headwaters
RIVER MILE: 61.34
LATITUDE: 37.44000 **LONGITUDE:** -78.37444

DOWNSTREAM LIMIT:

DESCRIPTION: Mouth at James River
RIVER MILE: 0.00
LATITUDE: 37.68167 **LONGITUDE:** -78.10972

The Willis River from its headwaters to its mouth at the James River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform

This segment of Willis River is not supporting the recreation use due to excessive counts of fecal coliform bacteria. The violation rates were as follows:

8/28 at the Route 605 bridge (2-WLS004.27)
3/9 at the Route 622 bridge (2-WLS025.32)
4/28 at the Route 621 bridge (2-WLS044.78)
5/9 at the Route 637 bridge (2-WLS055.54)
4/9 at the Route 638 bridge (2-WLS057.34).

The original 1996 impaired segment of the Willis River stretched from the James River downstream to Reynolds Creek (14.53 miles). The segment has been extended in the 2004 cycle to reflect the findings during the 2001-2002 TMDL study. The TMDL study area covers the entire Willis watershed to include the Attachment B station upstream of the original impaired segment. The Fecal Coliform TMDL was approved by the EPA on 5/31/02.

IMPAIRMENT SOURCE: Non-Point Source

A Total Maximum Daily Load (TMDL) study was conducted in 2001-2002 to determine the source of fecal coliform. The results attribute excessive fecal coliform loading to agriculture.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Buckingham, Cumberland
STREAM NAME: Randolph Creek
HYDROLOGIC UNIT: 02080205
TMDL ID: VAC-H36R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 11.52 - Miles
INITIAL LISTING: 2002 **TMDL SCHEDULE:** 2002
UPSTREAM LIMIT:

DESCRIPTION: Headwaters
RIVER MILE: 12.93
LATITUDE: 37.58972 **LONGITUDE:** -78.39944

DOWNSTREAM LIMIT:

DESCRIPTION: Upstream limit of Sports Lake
RIVER MILE: 1.41
LATITUDE: 37.64083 **LONGITUDE:** -78.23944

Randolph Creek from the headwaters to the upstream limit of Sports Lake.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform

This segment of Randolph Creek is not supporting the recreation use due to excessive counts of fecal coliform bacteria. Counts exceeded the instantaneous standard in 4/9 samples taken at 2-RND007.12 and 3/9 at 2-RND004.39, confined animal feeding operation (CAFO) special study stations.

IMPAIRMENT SOURCE: Non-Point Source

The source of fecal coliform is non-point sources.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: James City, New Kent
STREAM NAME: Diascund Reservoir
HYDROLOGIC UNIT: 02080206
TMDL ID: VAP-G09L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 1700 - Acres
INITIAL LISTING: 2002 **TMDL SCHEDULE:** 2014
UPSTREAM LIMIT:

DESCRIPTION: Extent of backwater

RIVER MILE:

LATITUDE:

LONGITUDE:

DOWNSTREAM LIMIT:

DESCRIPTION: Dam

RIVER MILE: 5.85

LATITUDE: 37.43000

LONGITUDE: -76.90000

Diascund Reservoir

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

Dissolved oxygen violations in bottom waters:

The lake is subject to dissolved oxygen violations due to natural stratification. No TMDL is needed.

IMPAIRMENT SOURCE: Natural Stratification

The DO violations are attributed to stratification in the deep lake waters.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Nottoway
STREAM NAME: Deep Creek, UT - Unnamed Tributary
HYDROLOGIC UNIT: 02080207
TMDL ID: VAP-J11R-03
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 2.13 - Miles
INITIAL LISTING: 1994 **TMDL SCHEDULE:** 2010

UPSTREAM LIMIT:

DESCRIPTION: Town of Crewe STP discharge
RIVER MILE: 2.16
LATITUDE: 37.18800 **LONGITUDE:** -78.12380

DOWNSTREAM LIMIT:

DESCRIPTION: Deep Creek confluence
RIVER MILE: 0.00
LATITUDE: 37.20160 **LONGITUDE:** -78.09320

Segment begins at the Town of Crewe Municipal Sewage Treatment Plant discharge, and extends downstream

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

Quarterly biological monitoring in 1994 at station 2-XGP001.80, located at the Route 619 bridge over the unnamed tributary just downstream of the STP outfall, determined that the benthic community is severely impaired as compared to the benthic community at biological monitoring station 2-XGP002.20, located just upstream of the discharge. As a result, the 2.16 miles of stream below the discharge was assessed not-supporting of the Clean Water Act's Aquatic Life Use support goal for the 1994 305(b) report.

During the year 2004 cycle, the station was monitored once in 1998 and received a "Moderately Impaired" rating. During 2002 the station was monitored twice and was considered "Not Impaired" both times. A TMDL has been approved for this segment and monitoring will be continued to verify benthic community is improving.

IMPAIRMENT SOURCE: PS - Municipal

The impairment was attributed to excessive solids deposits in the stream. The deposits were attributed to the Town of Crewe Municipal STP discharge (VA0020303). The Town of Crewe has finished construction of a 0.5 MGD oxidation ditch facility and the stream has shown improvement but additional monitoring will be necessary.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Chesterfield
STREAM NAME: Swift Creek Reservoir
HYDROLOGIC UNIT: 02080207
TMDL ID: VAP-J16L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 1800 - Acres
INITIAL LISTING: 2002 **TMDL SCHEDULE:** 2014

UPSTREAM LIMIT:

DESCRIPTION: Extent of backwater
RIVER MILE: 34.49
LATITUDE: 37.44540 **LONGITUDE:** -77.69390

DOWNSTREAM LIMIT:

DESCRIPTION: Dam
RIVER MILE: 31.13
LATITUDE: 37.41790 **LONGITUDE:** -77.64740

Swift Creek Reservoir

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

The reservoir stratifies in the summer months and is therefore subject to low dissolved oxygen in the bottom layer (hypolimnion). The Trophic State Indices are acceptable, therefore the reservoir is considered impaired by natural stratification.

IMPAIRMENT SOURCE: Natural Stratification

The dissolved oxygen violations are in the deeper areas of the lake and are believed to be caused by stratification.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Nelson
STREAM NAME: Lake Nelson
HYDROLOGIC UNIT: 02080203
TMDL ID: VAV-H13L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 45 - Acres
INITIAL LISTING: 2004
TMDL SCHEDULE:
UPSTREAM LIMIT:

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

DOWNSTREAM LIMIT:

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

2-XLU000.10 - 36 DO violations out of 45 samples below the thermocline.

IMPAIRMENT SOURCE: Natural thermal stratification

The source is natural thermal stratification. The trophic status index indicated that the low DO in the hypolimnion was not due to nutrient enrichment from anthropogenic sources.

Fact Sheets for Category 4 Waters

RIVER BASIN:	James River Basin	
CITY/COUNTY:	Albemarle	
STREAM NAME:	Sugar Hollow Reservoir	
HYDROLOGIC UNIT:	02080204	
TMDL ID:	VAV-H24L-01	
ASSESSMENT CATEGORY:	4C	
SEGMENT SIZE:	47 - Acres	
INITIAL LISTING:	2004	TMDL SCHEDULE:
UPSTREAM LIMIT:		

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

DOWNSTREAM LIMIT:

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

2-MNR014.50 - 38 DO violations out of 67 samples below the thermocline.

IMPAIRMENT SOURCE: Natural thermal stratification

The source is natural thermal stratification. The trophic status index indicated that the low DO in the hypolimnion was not due to nutrient enrichment from anthropogenic sources.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Albemarle
STREAM NAME: Ragged Mountain Reservoir
HYDROLOGIC UNIT: 02080203
TMDL ID: VAV-H28L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 54 - Acres
INITIAL LISTING: 2004
TMDL SCHEDULE:
UPSTREAM LIMIT:

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

DOWNSTREAM LIMIT:

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

2-XLV002.27 - 7 DO violations out of 8 samples below the thermocline.

IMPAIRMENT SOURCE: Natural thermal stratification

The source is natural thermal stratification. The trophic status index indicated that impairment was not due to nutrient enrichment from anthropogenic sources.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Albemarle, Charlottesville
STREAM NAME: Moores Creek
HYDROLOGIC UNIT: 02080204
TMDL ID: VAV-H28R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 6.36 - Miles
INITIAL LISTING: 1998 **TMDL SCHEDULE:** 2010

UPSTREAM LIMIT:

DESCRIPTION: Intersection of Rt. 29 & 1106
RIVER MILE: 6.36
LATITUDE: 38.02000 **LONGITUDE:** -78.54000

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with the Rivanna River
RIVER MILE: 0.00
LATITUDE: 38.02000 **LONGITUDE:** -78.45000

Segment begins at the intersection of Rt 29 and Rt 1106 and continues downstream to the confluence with the Rivanna River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform

2-MS000.60 - 6 fecal coliform violations out of 27 samples during the 2004 assessment period.
A TMDL has been approved by EPA for this parameter.

IMPAIRMENT SOURCE: NPS - Urban

The source is believed to be NPS urban runoff.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Bath
STREAM NAME: Pheasanty Run
HYDROLOGIC UNIT: 02080201
TMDL ID: VAV-I14R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 0.43 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: Coursey Sps Trout Cultural Station
RIVER MILE: 0.43
LATITUDE: 38.17722 **LONGITUDE:** -79.58167

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with Cowpasture River
RIVER MILE: 0.00
LATITUDE: 38.17111 **LONGITUDE:** -79.58139

Segment begins at the Coursey Springs Trout Cultural Station discharge and continues downstream to its confluence with Cowpasture River..

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, 1

IMPAIRMENT CAUSE: General Standard (Benthic)

A benthic survey in the Spring of 1995 indicated severely impaired waters below the Coursey Springs Fish Cultural Station discharge. As a result the 0.43 miles of the stream below the discharge were assessed as not supporting the Clean Water Act's Aquatic Life Use Support goal for the 1998 305(b) report. A TMDL has been developed and approved by EPA for this parameter. The segment was not sampled during the 2002 assessment period.

IMPAIRMENT SOURCE: PS - Trout Farm - Coursey Springs

The source is the fish cultural station.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Bath
STREAM NAME: Panther Run
HYDROLOGIC UNIT: 02080201
TMDL ID: VAV-I14R-03
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 1.85 - Miles
INITIAL LISTING: 2004
TMDL SCHEDULE:
UPSTREAM LIMIT:

DESCRIPTION: Begins at the headwaters
RIVER MILE: 1.85
LATITUDE: 37.99834
LONGITUDE: -79.78676

DOWNSTREAM LIMIT:
DESCRIPTION: Confluence with Mare Run
RIVER MILE: 0.00
LATITUDE: 38.01957
LONGITUDE: -79.75997

Segment begins at the headwaters and continues downstream to the confluence with Mare Run.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, 1

IMPAIRMENT CAUSE: General Standard (Benthic)

USFS 6018 - Moderately Impaired Benthic assessment during the 2004 assessment cycle (based on only 1 survey).

IMPAIRMENT SOURCE: Natural Conditions (Drought related)

The source is natural conditions (drought related)

Fact Sheets for Category 4 Waters

RIVER BASIN:	James River Basin		
CITY/COUNTY:	Bath		
STREAM NAME:	South Fork Pads Creek		
HYDROLOGIC UNIT:	02080201		
TMDL ID:	VAV-I17R-01		
ASSESSMENT CATEGORY:	4C		
SEGMENT SIZE:	5.36 - Miles		
INITIAL LISTING:	2004	TMDL SCHEDULE:	
UPSTREAM LIMIT:			
DESCRIPTION:	Begins at the headwaters		
RIVER MILE:	5.36		
LATITUDE:	37.92667	LONGITUDE:	-79.64586
DOWNSTREAM LIMIT:			
DESCRIPTION:	Confluence with Pads Creek		
RIVER MILE:	0.00		
LATITUDE:	37.88451	LONGITUDE:	-79.70217
Segment begins at the headwaters and continues downstream to the confluence with Pads Creek.			
CLEAN WATER ACT GOAL AND USE SUPPORT:			
Aquatic Life Use - Not Supporting, 1			
IMPAIRMENT CAUSE: General Standard (Benthic)			
USFS 6008 - Severely Impaired Benthic assessment during the 2004 assessment cycle.			
IMPAIRMENT SOURCE: Natural Conditions (Drought related)			
The source is natural conditions (drought related)			

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Augusta
STREAM NAME: Wallace Mill Stream
HYDROLOGIC UNIT: 02080202
TMDL ID: VAV-I32R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 0.8 - Miles
INITIAL LISTING: 1998 **TMDL SCHEDULE:** 2002
UPSTREAM LIMIT:

DESCRIPTION: Castaline Trout Farm
RIVER MILE: 0.80
LATITUDE: 38.04083 **LONGITUDE:** -79.38389

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with Byrd Spring
RIVER MILE: 0.00
LATITUDE: 38.04806 **LONGITUDE:** -79.39333

Segment begins at the Castaline Spring Branch Trout Farm discharge and continues downstream to the confluence with Byrd Spring.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

A benthic survey in June of 1996 indicated severely impaired waters below the Castaline Trout Hatchery discharge at monitoring station CSB 0.64 and moderate impairment at CSB 0.04. As a result the 1.89 miles of the stream was assessed as impaired for the 1998 305(b) report. A TMDL has been developed and approved by EPA for this parameter. This segment was not sampled for benthics during the 2004 assessment period.

IMPAIRMENT SOURCE: PS - Trout Farm - Castaline

The source is the fish cultural station.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Rockbridge
STREAM NAME: Robertson Lake
HYDROLOGIC UNIT: 02080202
TMDL ID: VAV-I38L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 31 - Acres
INITIAL LISTING: 2004
TMDL SCHEDULE:
UPSTREAM LIMIT:

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

DOWNSTREAM LIMIT:

DESCRIPTION:

RIVER MILE:

LATITUDE:

LONGITUDE:

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

2-XMW000.72 - 19 DO violations out of 45 samples below the thermocline.

IMPAIRMENT SOURCE: Natural thermal stratification

The source is natural thermal stratification. The trophic status index indicated that the low DO in the hypolimnion was not due to nutrient enrichment from anthropogenic sources.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Alleghany, Bath
STREAM NAME: Lake Moomaw (Jackson River)
HYDROLOGIC UNIT: 02080201
TMDL ID: VAW-I03L-01N
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 2004.95 - Acres
INITIAL LISTING: 2002
TMDL SCHEDULE: 2014

UPSTREAM LIMIT:

DESCRIPTION: Lake Moomaw
RIVER MILE: 49.31
LATITUDE: 38.00000
LONGITUDE: -79.94184

DOWNSTREAM LIMIT:

DESCRIPTION:
RIVER MILE: 43.24
LATITUDE: 37.95083
LONGITUDE: -79.95769

Lake Moomaw

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen (Bottom)

Aquatic Life Use

Stations and their locations are: 2-JKS053.48 - One mile below McClintic, 2-JKS044.60 - near Dam, 2-JKS046.40 - Confluence w/Big Lick Cr., 2-JKS046.40, 2-JKS048.90 Bolar Mtn. Campground and 2-JKS053.48. "TL" and "BL" suffixes are used to distinguish between surface collections and collections at depth.

Bottom layer: Dissolved oxygen in the bottom layer of the reservoir exceeds the 4.0 mg/l minimum criterion for Class IV waters. Exceedances occur during stratification generally in the late spring, summer and early fall. Dissolved oxygen depletion below the thermocline is a natural occurrence in reservoirs. Water Quality Standards do not specifically address the maintenance of dissolved oxygen levels (stratification) in a reservoir bottom layer. The minimum criterion, based on Class of water, applies to all waters in the Commonwealth. 2-JKS048.90-BL reports five excursions from 30 measurements, 2-JKS046.40-BL eight of 31 and 2-JKS044.60-BL exceeds the minimum in seven of 32. The waters do not support the aquatic life use based on the existing Class IV dissolved oxygen minimum criterion and the natural depletion of oxygen at depth in reservoirs. The 2002 dissolved oxygen impairment remains.

The Carlson Trophic State Index (TSI) is used to determine the cause of the dissolved oxygen impairment eg. natural or anthropogenic in nature. The following are the index scores from four stations where CA = chlorophyll (a), TP = total phosphorus and SD = seecchi disk (transparency).

Jackson River

2-JKS053.48-TL CA [49.14] TP [56.33] SD [52.21].
2-JKS048.90-TL CA [40.16] TP [38.42] SD [45.93].
2-JKS046.40-TL CA [38.83] TP [40.15] SD [44.75].
2-JKS044.60-TL CA [38.54] TP [40.15] SD [42.83].

TSI scores below 60 indicate a natural aging process in the reservoir while above 60 indicates man's activities on the land may be

Fact Sheets for Category 4 Waters

influencing the natural aging of the reservoir. The data above, primarily SD, indicates a natural aging process for Lake Moomaw - Category 4C.

The lower 725 acres of the Reservoir are designated 'Waters of Concern' due to sediment excursions of the Consensus Based Probable Effects Concentration (PEC) screening value (SV) for nickel (Ni, SV= 48.6 ppm) [MacDonald et al., 2000]. Station 2-JKS46.40 finds from a 1999 ambient sediment collection nickel exceeds at 51.3 ppm. Station 2-JKS044.60 also records two nickel exceedances from ambient collections in 1998 at 49.7 ppm and 1999 at 52.5 ppm. The waters are reported as having 'Observed Effects' as a result.

IMPAIRMENT SOURCE: Natural / Stratification

Aquatic Life Use

Bottom dissolved oxygen depletion occurs naturally in reservoirs due to stratification.

The source of the sediment metal exceedance is unknown.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Bath
STREAM NAME: Douthat Lake (Wilson Creek)
HYDROLOGIC UNIT: 02080201
TMDL ID: VAW-I09L-01N
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 60 - Acres
INITIAL LISTING: 2002
TMDL SCHEDULE: 2014

UPSTREAM LIMIT:

DESCRIPTION: Backwaters of Douthat Lake.
RIVER MILE: 8.50
LATITUDE: 37.90894
LONGITUDE: -79.79689

DOWNSTREAM LIMIT:

DESCRIPTION: Douthat Dam
RIVER MILE: 7.35
LATITUDE: 37.90277
LONGITUDE: -79.80277

The impaired waters extend from the backwaters of Douthat Lake downstream to the Douthat Dam. The entire lake is on the Healing Springs Quad.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen (Bottom)

Aquatic Life Use

Bottom layer: Dissolved oxygen in the bottom layer of the reservoir exceeds the 4.0 mg/l minimum criterion for Class IV waters. Exceedances occur during stratification generally in the late spring, summer and early fall. Dissolved oxygen depletion below the thermocline is a natural occurrence in reservoirs. Water Quality Standards do not specifically address the maintenance of dissolved oxygen levels (stratification) in a reservoir bottom layer. The minimum criterion, based on Class of water, applies to all waters in the Commonwealth. 2-WLN007.36-BL exceeds the minimum criterion in 17 of 46 measurements. The waters do not support the aquatic life use based on the existing Class IV dissolved oxygen minimum criterion and the natural depletion of oxygen at depth in reservoirs. The 2002 dissolved oxygen impairment remains.

The Carlson Trophic State Index (TSI) is used to determine the cause of the dissolved oxygen impairment eg. natural or anthropogenic in nature. The following are the index scores from four stations where CA = chlorophyll (a), TP = total phosphorus and SD = seecchi disk (transparency).

Wilson Creek

2-WLN007.36-TL CA [37.82] TP [42.65] SD [38.52].

TSI scores below 60 indicate a natural aging process in the reservoir while above 60 indicates man's activities on the land may be influencing the natural aging of the reservoir. The data above, primarily SD, indicates a natural aging process for Douthat Lake- Category 4C.

IMPAIRMENT SOURCE: Natural / Stratification

Fact Sheets for Category 4 Waters

Aquatic Life Use

Bottom dissolved oxygen depletion occurs naturally in reservoirs due to stratification.

Fact Sheets for Category 4 Waters

RIVER BASIN: James River Basin
CITY/COUNTY: Botetourt
STREAM NAME: Crawford Branch
HYDROLOGIC UNIT: 02080201
TMDL ID: VAW-I22R-03
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 1.76 - Miles
INITIAL LISTING: 2004 **TMDL SCHEDULE:** 2016

UPSTREAM LIMIT:

DESCRIPTION: The headwaters of Crawford Br.
RIVER MILE: 1.76
LATITUDE: 37.69342 **LONGITUDE:** -79.92471

DOWNSTREAM LIMIT:

DESCRIPTION: Crawford Br. confluence with Craig Cr.
RIVER MILE: 0.00
LATITUDE: 37.68400 **LONGITUDE:** -79.89651

Crawford Branch headwaters downstream to its confluence with Craig Creek

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

Aquatic Life Use

A US Forest Service site 6570 located approximately 0.19 miles from the Crawford Branch mouth on Craig Creek finds the benthic community moderately impaired. A single 1999 MAIS survey score is 11; rating Poor/Fair or moderately impaired. Comments provided by the US Forest Service recommends not listing this site as drought conditions produced results indicating impairment- Category 4C.

IMPAIRMENT SOURCE: Natural

Aquatic Life Use

The benthic impairment is caused by drought conditions.

Fact Sheets for Category 4 Waters

RIVER BASIN: Rappahannock River Basin
CITY/COUNTY: Fauquier, Rappahannock
STREAM NAME: Thumb Run
HYDROLOGIC UNIT: 02080103
TMDL ID: VAN-E01R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 6.91 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2002
UPSTREAM LIMIT:

DESCRIPTION: Confluence w/West Branch Thumb Run

RIVER MILE: 6.91

LATITUDE: 38.79028

LONGITUDE: -77.97028

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with the Rappahannock River

RIVER MILE: 0.00

LATITUDE: 38.71167

LONGITUDE: -77.99583

Segment begins at the confluence of West Branch Thumb Run and East Branch Thumb Run downstream to its confluence to Rappahannock River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform (1996)

Sufficient exceedances of the instantaneous fecal coliform bacteria criterion (2 of 13 samples - 15.4%) were recorded at DEQ's ambient water quality monitoring station 3-THU004.69 at Route 770 to assess this stream segment as not supporting of the Recreation Use goal for the 2004 water quality assessment.

IMPAIRMENT SOURCE: NPS

A fecal coliform TMDL for the Thumb Run watershed was developed and submitted to the U.S. EPA on April 29, 2002 and approved May 31, 2002. The sources of fecal coliform bacteria requiring reductions are livestock and wildlife waste delivered directly to the stream, and human contributions from straight pipes.

Fact Sheets for Category 4 Waters

RIVER BASIN: Rappahannock River Basin
CITY/COUNTY: Fauquier
STREAM NAME: Thumb Run, West Branch
HYDROLOGIC UNIT: 02080103
TMDL ID: VAN-E01R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 10.1 - Miles
INITIAL LISTING: 2002 **TMDL SCHEDULE:** 2002
UPSTREAM LIMIT:

DESCRIPTION: Headwaters of West Branch Thumb Run

RIVER MILE: 10.10

LATITUDE: 38.88528

LONGITUDE: -78.03611

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence of West Branch to the mainstem Thumb Run

RIVER MILE: 0.00

LATITUDE: 38.79028

LONGITUDE: -77.97028

Segment starts at the headwaters of West Branch Thumb Run downstream to the confluence of West Branch to the mainstem Thumb Run.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform (2002)

Sufficient exceedances of the instantaneous fecal coliform bacteria criterion (7 of 12 samples - 58.3%) were recorded at DEQ's ambient water quality monitoring station 3-THW004.68 at Route 635 to assess this stream segment as not supporting of the Recreation Use goal for the 2004 water quality assessment.

IMPAIRMENT SOURCE: NPS

A fecal coliform TMDL for the Thumb Run watershed was developed and submitted to the U.S. EPA on April 29, 2002 and approved May 31, 2002. The sources of fecal coliform bacteria requiring reductions are livestock and wildlife waste delivered directly to the stream, and human contributions from straight pipes.

Fact Sheets for Category 4 Waters

RIVER BASIN: Rappahannock River Basin
CITY/COUNTY: Fauquier
STREAM NAME: Thumb Run, East Branch
HYDROLOGIC UNIT: 02080103
TMDL ID: VAN-E01R-04
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 5.91 - Miles
INITIAL LISTING: 2004 **TMDL SCHEDULE:** 2002
UPSTREAM LIMIT:

DESCRIPTION: Headwaters of East Branch Thumb Run
RIVER MILE: 5.91
LATITUDE: 38.85695 **LONGITUDE:** -77.94713

DOWNSTREAM LIMIT:
DESCRIPTION: Confluence of East Branch to the mainstem Thumb Run
RIVER MILE: 0.00
LATITUDE: 38.79028 **LONGITUDE:** -77.97028

Segment starts at the headwaters of East Branch Thumb Run downstream to the confluence of East Branch to the mainstem Thumb Run.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform (2004)

Sufficient exceedances of the instantaneous fecal coliform bacteria criterion (4 of 14 samples - 28.6%) were recorded at DEQ's ambient water quality monitoring station (3-THM001.40) at Route 647 to assess this stream segment as not supporting of the Recreation Use goal for the 2004 water quality assessment.

IMPAIRMENT SOURCE: NPS

A fecal coliform TMDL for the Thumb Run watershed was developed and submitted to the U.S. EPA on April 29, 2002 and approved May 31, 2002. The sources of fecal coliform bacteria requiring reductions are livestock and wildlife waste delivered directly to the stream, and human contributions from straight pipes.

Fact Sheets for Category 4 Waters

RIVER BASIN: Rappahannock River Basin
CITY/COUNTY: Culpeper
STREAM NAME: Mountain Run
HYDROLOGIC UNIT: 02080103
TMDL ID: VAN-E09R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 7.4 - Miles
INITIAL LISTING: 1994 **TMDL SCHEDULE:** 2001

UPSTREAM LIMIT:

DESCRIPTION: Confluence of Flat Run
RIVER MILE: 7.40
LATITUDE: 38.46833 **LONGITUDE:** -77.82694

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence with Rappahannock River
RIVER MILE: 0.00
LATITUDE: 38.45028 **LONGITUDE:** -77.76250

Segment begins at the confluence of Flat Run to Mountain Run and continues downstream to its confluence with the Rappahannock River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform (1996)

Sufficient exceedances of the instantaneous fecal coliform bacteria criterion (12 of 37 samples - 32.4%) were recorded at DEQ's ambient water quality monitoring station 3-MTN000.59 at Route 620 to assess this stream segment as not supporting of the Recreation Use goal for the 2004 water quality assessment.

Exceedance of the water quality criterion based tissue value (TV) of 54 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue was recorded in one species of fish samples collected in 2001 at DEQ fish tissue/sediment monitoring station 3-MTN005.79 (american eel). As a result, this segment was assessed as fully supporting the Fish Consumption Use goal with an observed effect.

IMPAIRMENT SOURCE: NPS

This segment was listed in the 1998 303(d) report for both fecal coliform bacteria and general standard (benthic) impairments. A fecal coliform TMDL for the this segment was approved by EPA on 4/27/01. The segment was de-listed for the benthic impairment by EPA on 4/18/01.

Fact Sheets for Category 4 Waters

RIVER BASIN: Rappahannock River Basin
CITY/COUNTY: Culpeper
STREAM NAME: Mountain Run
HYDROLOGIC UNIT: 02080103
TMDL ID: VAN-E09R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 4.88 - Miles
INITIAL LISTING: 2004 **TMDL SCHEDULE:** 2001

UPSTREAM LIMIT:

DESCRIPTION: Outlet from Lake Pelham
RIVER MILE: 23.98
LATITUDE: 38.46844 **LONGITUDE:** -78.01974

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence of an unnamed tributary
RIVER MILE: 19.1
LATITUDE: 38.46844 **LONGITUDE:** -78.01974

Segment begins at the outlet from Lake Pelham on Mountain Run and continues downstream to the confluence of an unnamed tributary with Mountain Run, at rivermile 19.1.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform (2004)

Sufficient exceedances of the instantaneous fecal coliform bacteria criterion (3 of 18 samples - 16.7%) were recorded at DEQ's ambient water quality monitoring station 3-MTN022.49 at Route 522 to assess this stream segment as not supporting of the Recreation Use goal for the 2004 water quality assessment.

The Fish Consumption Use goal was assessed using downstream DEQ fish tissue/sediment stations 3-MTN014.33 near Route 663 (sampled in 2001) and 3-MTN014.88 also near Route 663 (sampled in 1999). An exceedance of the water quality criterion based tissue value (TV) of 54 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue was recorded in one species of fish samples collected in 1999 at monitoring station 3-MTN014.88 (american eel). As a result, this segment was assessed as fully supporting the Fish Consumption Use goal with an observed effect.

IMPAIRMENT SOURCE: NPS

A fecal coliform bacteria TMDL for the the Mountain Run watershed was approved by the U.S. EPA on 4/27/01.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Pittsylvania, Campbell
STREAM NAME: Big Otter River
HYDROLOGIC UNIT: 03010101
TMDL ID: VAC-L28R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 13.98 - Miles
INITIAL LISTING: 1998 **TMDL SCHEDULE:** 2001

UPSTREAM LIMIT:

DESCRIPTION: Buffalo Creek mouth on Big Otter River
RIVER MILE: 13.98
LATITUDE: 37.23528 **LONGITUDE:** -79.32663

DOWNSTREAM LIMIT:

DESCRIPTION: Big Otter River confluence with Roanoke River
RIVER MILE: 0.00
LATITUDE: 37.19389 **LONGITUDE:** -79.27083

The segment begins at the mouth of Buffalo Creek on the Big Otter River and ends at the mouth of the Big Otter River on the Staunton (Roanoke) River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Fecal Coliform

This segment of Big Otter River is not supporting the recreation use due to excessive counts of fecal coliform bacteria. Counts exceeded the instantaneous standard in 14/53 samples taken at 4-ABOR000.62.

During the 2004 cycle three segments of the Big Otter River were combined into one to reflect the impaired segment from the mouth of Buffalo Creek to the mouth of the Big Otter River at the Roanoke River.

IMPAIRMENT SOURCE: NPS - Agriculture

The major source of the fecal coliform is pasture grazing.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Campbell
STREAM NAME: Phelps Creek Reservoir
HYDROLOGIC UNIT: 03010102
TMDL ID: VAC-L34L-05
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 25.64 - Acres
INITIAL LISTING: 2004
TMDL SCHEDULE:
UPSTREAM LIMIT:

DESCRIPTION: Backwaters

RIVER MILE:

LATITUDE: 37.07330

LONGITUDE: -78.95930

DOWNSTREAM LIMIT:

DESCRIPTION: Impoundment Structure

RIVER MILE:

LATITUDE: 37.06820

LONGITUDE: -78.95310

Phelps Creek Reservoir from its impoundment structure to its backwaters

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

Phelps Creek Reservoir was assessed not supporting of the Aquatic Life Use based on low dissolved oxygen below the thermocline at 4APLP000.45. Phelps Creek reservoir is stratified May-October. Trophic State Indices were calculated for the following parameters: Total Phosphorous - 51.96 and Secchi Depth - 51.72. A Chlorophyll a TSI was not calculated because the Town of Brookneal treats the reservoir with algaecide.

Phelps Creek Reservoir is considered mesotrophic and non-impaired based on these calculations.

IMPAIRMENT SOURCE: Hypolimnetic Waters

The low DO is caused by stratification of the lake.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Pittsylvania
STREAM NAME: Cherrystone Creek Reservoir
HYDROLOGIC UNIT: 03010105
TMDL ID: VAC-L66L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 142.93 - Acres
INITIAL LISTING: 2004
TMDL SCHEDULE:
UPSTREAM LIMIT:

DESCRIPTION: Backwaters

RIVER MILE:

LATITUDE:

LONGITUDE:

DOWNSTREAM LIMIT:

DESCRIPTION: Impoundment Structure

RIVER MILE:

LATITUDE:

LONGITUDE:

Cherrystone Creek Reservoir No. 1 & 2 from their backwaters to the impoundment structures.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

Cherrystone Creek Reservoir was assessed not supporting of the Aquatic Life Use based on low dissolved oxygen below the thermocline at 4ACRR008.32 & 4ARFK000.20. Cherrystone Creek reservoir is stratified April-October. Trophic State Indices were calculated for the following parameters:

4ACRR008.32

Total Phosphorous - 47.37

Chlorophyll a - 48.21

Secchi Depth - 54.39

4ARFK000.20

Total Phosphorous - 47.37

Chlorophyll a - 42.87

Secchi Depth - 54.64

Cherrystone Creek Reservoir is considered mesotrophic and non-impaired based on these calculations.

IMPAIRMENT SOURCE: Hypolimnetic Waters

The low DO is caused by stratification of the lake.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Halifax
STREAM NAME: Banister Lake
HYDROLOGIC UNIT: 03010105
TMDL ID: VAC-L71L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 381.44 - Acres
INITIAL LISTING: 2004
TMDL SCHEDULE:
UPSTREAM LIMIT:

DESCRIPTION: Backwaters

RIVER MILE:

LATITUDE: 36.80210

LONGITUDE: -78.98030

DOWNSTREAM LIMIT:

DESCRIPTION: Impoundment Structure

RIVER MILE:

LATITUDE: 36.78190

LONGITUDE: -78.92340

On the Banister River

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

Banister Lake was assessed not supporting of the Aquatic Life Use based on low dissolved oxygen below the thermocline at 4ABAN012.46. Banister Lake is stratified June-September. Trophic State Indices were calculated for the following parameters: 4ABAN012.46

Total Phosphorous - 51.52

Chlorophyll a - 54.89

Secchi Depth - 60.74

Banister Lake is considered mesotrophic and non-impaired based on these calculations.

IMPAIRMENT SOURCE: Hypolimnetic Waters

The low DO is caused by stratification of the lake.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Botetourt, Roanoke
STREAM NAME: Carvin Cove Reservoir - Carvin Creek
HYDROLOGIC UNIT: 03010101
TMDL ID: VAW-L05L-01N
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 630 - Acres
INITIAL LISTING: 2002 **TMDL SCHEDULE:** 2014

UPSTREAM LIMIT:

DESCRIPTION: Backwaters of Carvin Cove Reservoir
RIVER MILE: 9.80
LATITUDE: 37.40361 **LONGITUDE:** -79.97900

DOWNSTREAM LIMIT:

DESCRIPTION: Carvin Cove Reservoir Dam
RIVER MILE: 5.86
LATITUDE: 37.36917 **LONGITUDE:** -79.95827

The segment encompasses the whole of Carvin Cove Reservoir.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen (Bottom)

Aquatic Life Use

Bottom layer: Two of 11 sample results exceed the lake total phosphorus threshold of 0.05 mg/l at station 4ACRV006.19-BL (Carvin Cove Dam). 4ACRV006.19-BL records one value at 0.09 (May 1999) and the second at 0.07 mg/l (October 2000). These excursions are reported as Observed Effects and cause these waters to be a 'Water of Concern'.

Dissolved oxygen in the bottom layer of the reservoir exceeds the 4.0 mg/l minimum criterion for Class IV waters. Exceedances occur in the late spring, summer and early fall. Dissolved oxygen depletion below the thermocline is a natural occurrence in reservoirs. Water Quality Standards do not specifically address the maintenance of dissolved oxygen levels (stratification) in a reservoir bottom layer. The minimum criterion, based on Class of water, applies to all waters in the Commonwealth. 4ACRV006.19-BL reports eight excursions from 11 measurements. The waters do not support the aquatic life use based on the existing Class IV dissolved oxygen minimum criterion and the natural depletion of oxygen at depth in reservoirs. The 2002 dissolved oxygen impairment remains.

The Carlson Trophic State Index (TSI) is used to determine the cause of the dissolved oxygen impairment eg. natural or anthropogenic in nature. The following are the index scores from 4ACRV006.19 where CA = chlorophyll (a), TP = total phosphorus and SD = seecchi disk (transparency).

4ACRV006.19-TL CA [28.86] TP [48.34] SD [54.16].

TSI scores below 60 indicate a natural aging process while above 60 indicates man's activities on the land may be influencing the natural aging of the reservoir. The data above, primarily SD, indicates a natural aging process for the Carvin Cove Reservoir- Category 4C.

IMPAIRMENT SOURCE: Natural / Stratification

Fact Sheets for Category 4 Waters

Aquatic Life Use

The exact source of the total phosphorus excursions is unknown.

Bottom dissolved oxygen depletion occurs naturally in reservoirs due to stratification.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Franklin
STREAM NAME: South Fork of the Blackwater River Drainage
HYDROLOGIC UNIT: 03010101
TMDL ID: VAW-L08R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 6.06 - Miles
INITIAL LISTING: 1996
TMDL SCHEDULE: 2004
UPSTREAM LIMIT:

DESCRIPTION: Rt. 739 Bridge, Algoma

RIVER MILE: 6.06

LATITUDE: 37.05361

LONGITUDE: -80.08493

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence of North and South Forks

RIVER MILE: 0.00

LATITUDE: 37.02472

LONGITUDE: -80.02676

The segment upper limit is the South Fork headwaters at Rt. 739 Bridge in Algoma, Va. on the Callaway Quad. The downstream limit is just west of the Rt. 641 Bridge where the North and South Forks join forming the Blackwater River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Bacteria (1996)

Recreational Use

The South Fork of the Blackwater River Bacteria Total Maximum Daily Load (TMDL) Study and allocations are complete. The waters are therefore Category 4A for Bacteria with the US Environmental Protection Agency (EPA) approval of the study on 02/02/2001. The study applies to the entire South Fork drainage. The Implementation Plan is complete as of 8/23/2001 and incorporates the S.F. Blackwater River. Ultimately the TMDL Study and allocations will be incorporated into the 303(e) Water Quality Management Plans. The entirety of the approved study and allocations and Implementation Plans can be viewed at <http://www.deq.state.va.us>.

The South Fork Blackwater River segment is originally based on a 319 funded special study (SS 925102) data and ambient fecal coliform bacteria sample collections. The impaired segment, initially 303(d) Listed in 1996, found abundant fecal coliform bacteria counts failed to support the recreational use by exceedances of both the existing geometric mean (200 cfu/100 ml) and former instantaneous criterion of 1000 cfu/100 ml..

Monitoring continues at station 4ABSF001.15 where 16 of 20 fecal coliform bacteria samples exceed the current instantaneous fecal coliform bacteria criterion of 400 cfu/100 ml. Exceeding values range from 430 cfu/100 ml to greater than 8000.

Escherichia coli (E. coli) bacteria exceed the 235 cfu/100 ml instantaneous criterion in 14 of 17 samples. Excursions range from 250 to greater than 800 cfu/100 ml (TMDL complete - Bacteria - Category 4A). The segment does not support the recreational use.

IMPAIRMENT SOURCE: NPS - Agriculture / Wildlife

Recreational Use

Bacteria source tracking utilized in the TMDL study demonstrates that wildlife is the dominant contributor of fecal coliform bacteria with agriculture second. Direct deposition at baseflow is the critical condition.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Franklin
STREAM NAME: Mollie Branch
HYDROLOGIC UNIT: 03010101
TMDL ID: VAW-L09R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 2.52 - Miles
INITIAL LISTING: 1998 **TMDL SCHEDULE:** 2010

UPSTREAM LIMIT:

DESCRIPTION: Mollie Branch headwaters.
RIVER MILE: 2.52
LATITUDE: 37.07306 **LONGITUDE:** -79.88228

DOWNSTREAM LIMIT:

DESCRIPTION: Mollie Branch mouth on Maggodee Cr.
RIVER MILE: 0.00
LATITUDE: 37.09278 **LONGITUDE:** -79.85430

The segment begins in the headwaters of Mollie Branch and extends to its mouth on Maggodee Creek. The segment is on the Boones Mill and Redwood Quads.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Bacteria

Recreational Use

The Maggodee Creek Bacteria Total Maximum Daily Load (TMDL) Study with allocations is complete. The study incorporates tributary streams that lie within the boundaries of watershed VAW-L09R. The waters are Category 4A for bacteria with the U.S. Environmental Protection Agency (EPA) approval of the Maggodee Creek Study on 04/27/2001. The entirety of the approved study with allocations can be viewed at <http://www.deq.state.va.us>.

The Maggodee Creek segment, originally 303(d) Listed in 1996, is based on a 319 funded special study (SS 925102) and ambient sample collections. Abundant fecal coliform bacteria counts failed to support the recreational use by exceedances of both the geometric mean (200 n/100 ml) and former instantaneous criterion of 1000 cfu/100 ml.

Fecal coliform bacteria continue to exceed the current instantaneous criterion of 400 cfu/100 ml at station 4AMHA000.01 (Off Rt. 687 at confluence/w Maggodee). Ten of 18 samples exceed. Exceedances range from 1400 to greater than 2000 cfu/100 ml.

Escherichia coli (E. coli) exceedances of the 235 cfu/100 ml instantaneous criterion are found in 10 of 16 samples. The range of excursions is 370 cfu/100 ml to greater than 800.

Aquatic Life Use

An overlapping 0.76 mile segment is a 'Water of Concern' based on total phosphorus screening value (SV) excursions at station 4AMHA000.01. Two of 18 samples exceed the 0.20 mg/l total phosphorus SV. Maximums are 0.37 (April 2000) and 0.54 mg/l (June 2000). The segment extends from the Mollie Creek mouth on Maggodee Creek upstream 0.76 miles.

IMPAIRMENT SOURCE: NPS - Agriculture / Wildlife

Fact Sheets for Category 4 Waters

Recreational Use

Bacteria source tracking utilized in the TMDL study show agriculture and wildlife as the major contributors of fecal coliform bacteria in the Maggodee Creek drainage.

Aquatic Life Use

The source of the total phosphorus is believed to be mainly from agricultural nonpoint source runoff.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Franklin
STREAM NAME: Gills Creek
HYDROLOGIC UNIT: 03010101
TMDL ID: VAW-L11R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 22.25 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: Headwaters west of Rt. 684 Bridge.
RIVER MILE: 28.62
LATITUDE: 37.15528 **LONGITUDE:** -79.92226

DOWNSTREAM LIMIT:

DESCRIPTION: Gills Cr. backwaters of Smith Mtn. Lake
RIVER MILE: 6.37
LATITUDE: 37.08500 **LONGITUDE:** -79.71131

The segment upper limit is west of the Rt. 684 Bridge in Franklin County (Garden City Quad). The downstream limit is in the Gills Creek backwaters of Smith Mountain Lake. (Moneta S.W. Quad).

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Bacteria

Recreational Use

The Gills Creek Bacteria Total Maximum Daily Load (TMDL) Study and allocations are complete and U.S. EPA approved on 05/31/2002. The segment, originally 303(d) Listed in 1996, was based on a 319 funded special study (SS 925102) and ambient sample collections. Abundant fecal coliform bacteria counts failed to support the recreational use by exceedances of both the geometric mean (200 cfu/100 ml) and the former instantaneous criterion (1000 cfu/100 ml).

The stream continues to fail to meet the recreational use due to exceedances of the current instantaneous 400 cfu/100 ml criterion. Six of 27 fecal coliform bacteria sample counts exceed at station 4AGIL023.22 (Rt. 657 Bridge). Station 4AGIL008.30 (Rt. 834 Bridge near Booker T. Washington National Park) records seven excursions of the criterion from 28 samples. Eight of 17 Escherichia coli (E. coli) bacteria samples exceed the 235 cfu/100 ml criterion. The recreational use remains impaired.

IMPAIRMENT SOURCE: NPS - Agriculture / Urban

Recreational Use

Based on Bacteria Source Tracking via the TMDL Study wildlife and agriculture are the major contributors.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Bedford, Franklin, Pittsylvania
STREAM NAME: Smith Mountain Lake - Roanoke River, Witcher &
HYDROLOGIC UNIT: 03010101
TMDL ID: VAW-L12L-01N
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 4515 - Acres
INITIAL LISTING: 2002
TMDL SCHEDULE: 2014
UPSTREAM LIMIT:

DESCRIPTION: Blackwater R. confluence
RIVER MILE: 164.84
LATITUDE: 37.04333
LONGITUDE: -79.59708

DOWNSTREAM LIMIT:

DESCRIPTION: Smith Mtn. Dam
RIVER MILE: 160.67
LATITUDE: 37.04333
LONGITUDE: -79.59826

The segment begins at the confluence of the Blackwater and Roanoke Rivers and extends downstream 4.17 miles to Smith Mountain Dam. This lake segment also includes Craddock and Witcher Creeks. The entire segment is on the Smith Mountain Dam (Quad).

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen (Bottom)

The segment brackets stations 4AROA163.76 (confluence with the Blackwater River), 4AROA158.22 (Smith Mtn. Dam), 4ACCK001.80 (1.80 miles upstream of the Craddock Creek mouth) and 4AWTH000.40 (0.40 miles upstream of the Witcher Creek mouth).

Aquatic Life Use

Bottom layer: Dissolved oxygen in the bottom layer of the reservoir exceeds the 4.0 mg/l minimum criterion for Class IV waters. Exceedances occur in the late spring, summer and early fall. Dissolved oxygen depletion below the thermocline is a natural occurrence in reservoirs. Water Quality Standards do not specifically address the maintenance of dissolved oxygen levels (stratification) in a reservoir bottom layer. The minimum criterion, based on Class of water, applies to all waters in the Commonwealth. Station 4AROA163.76-BL records 102 of 421 measurements below the minimum criterion. 4AROA158.22-BL finds 124 of 514, 4AWTH000.40-BL reports 107 of 454 and 4ACCK001.80 records 66 of 263 excursions of the minimum criterion. The waters do not support the aquatic life use based on the existing Class IV dissolved oxygen minimum criterion and the natural depletion of oxygen at depth in reservoirs. The 2002 dissolved oxygen impairment remains.

The Carlson Trophic State Index (TSI) is used to determine the cause of the dissolved oxygen impairment eg. natural or anthropogenic in nature. The following are the index scores from three stations where CA = chlorophyll (a), TP = total phosphorus and SD = seechi disk (transparency).

Roanoke River and Witcher Creek (2885 acres or 4.17 miles)
4AROA163.76-TL CA [36.51] TP [39.16] SD [44.84].
4AROA158.22-TL CA [36.79] TP [39.42] SD [43.70].
4AWTH000.40-TL CA [35.01] TP [37.35] SD [44.33].

Craddock Creek (1630 acres or 4.35 miles)

Fact Sheets for Category 4 Waters

4ACCK001.80-TL CA [35.10] TP [38.51] SD [42.84].

TSI scores below 60 indicate a natural aging process in the reservoir while above 60 indicates man's activities on the land may be influencing the natural aging of the reservoir. The data above, primarily SD, indicates a natural aging process for the Roanoke River, Craddock Creek and Witcher Creek portions of Smith Mountain Lake- Category 4C.

IMPAIRMENT SOURCE: Natural / Stratification

Aquatic Life Use

Bottom dissolved oxygen depletion occurs naturally in reservoirs due to stratification.

Informational Note: Smith Mountain Lake is designated by Virginia's Water Quality Standards as a Nutrient Enriched Water (9 VAC 25-260-350 A.1.; NEW-1). The Water Quality Management Planning (WQMP) Regulation also lists Smith Mountain Lake as water quality limited for phosphorus (9 VAC 25-720-80 B. Segment classification).

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Franklin
STREAM NAME: Smith Mountain Lake - Gills Creek
HYDROLOGIC UNIT: 03010101
TMDL ID: VAW-L12L-10N
ASSESSMENT CATEGORY: 4A/4C
SEGMENT SIZE: 733 - Acres
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2010

UPSTREAM LIMIT:

DESCRIPTION: Backwaters of Gills Cr.
RIVER MILE: 6.37
LATITUDE: 37.08222 **LONGITUDE:** -79.70693

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence of Gills Cr. with Blackwater R.
RIVER MILE: 0.00
LATITUDE: 37.04694 **LONGITUDE:** -79.66575

The segment begins at the Gills Creek backwaters and extends downstream 5.21 miles to the Gills Creek mouth on the Blackwater River in Smith Mountain Lake.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting, Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Bacteria - 180 acres, Dissolved Oxygen (Bottom 2002)

The waters are monitored at stream station 4AGIL008.34 (Rt. 834 Bridge near Booker T. Washington National Park) and downstream lake station 4AGIL002.39 (Below Strippers Landing).

Swimming Use

The Gills Creek Bacteria Total Maximum Daily Load (TMDL) Study and allocations are complete and US Environmental Protection Agency (EPA) approved on May 31, 2002. The entirety of the approved study and allocations is available for viewing at <http://www.deq.state.va.us>.

The recreational use segment, originally 303(d) Listed in 1996, is based on a 319 funded special study (SS 925102) and ambient sample collections. Abundant fecal coliform bacteria counts failed to support the swimming use by exceedances of both the geometric mean (200 n/100 ml) and the former instantaneous criterion of 1000 cfu/100 m).

Top layer: Based on fecal coliform bacteria samples collected upstream at 4AGIL008.34 the upper reaches of Gills Creek in Smith Mountain Lake continue to fail to meet the recreational use due to exceedances of the current instantaneous criterion of 400 cfu/100 ml. Seven of 28 samples exceed the criterion at station 4AGIL008.30. The recreational use remains impaired and is categorized 4A- TMDL Study complete and US EPA approved.

The bacteria impaired segment extends from the Gills Creek backwaters downstream 2.41 miles, approximately 2.0 miles downstream of the Rt. 668 crossing or 180 acres in Smith Mountain Lake (37°04'03.78" / 079°40'40.12").

Aquatic Life Use

Bottom layer: Dissolved oxygen in the bottom layer of the reservoir exceeds the 4.0 mg/l minimum criterion for Class IV waters. Exceedances occur in the late spring, summer and early fall. Dissolved oxygen depletion below the thermocline is a natural occurrence in reservoirs. Water Quality Standards do not specifically address the maintenance of dissolved oxygen levels (stratification) in a reservoir

Fact Sheets for Category 4 Waters

bottom layer. Depth profiles in this upper segment of Gills Creek were not conducted. However downstream station 4AGIL002.39 records 55 of 143 dissolved oxygen measurements exceeding the minimum criterion. The minimum criterion, based on Class of water, applies to all waters in the Commonwealth. The waters do not support the aquatic life use based on the existing Class IV dissolved oxygen minimum criterion and the natural depletion of oxygen at depth in reservoirs. The 2002 dissolved oxygen impairment remains.

The Carlson Trophic State Index (TSI) is used to determine the cause of the dissolved oxygen impairment eg. natural or anthropogenic in nature. The following are the index scores from three stations where CA = chlorophyll (a), TP = total phosphorus and SD = seechi disk (transparency).

4AGIL002.39- TL CA [40.75] TP [40.57] SD [47.83].

TSI scores below 60 indicate a natural aging process in the reservoir while above 60 indicates man's activities on the land may be influencing the natural aging of the reservoir. The data above, primarily SD, indicates a natural aging process for the entire Gills Creek portion of Smith Mountain Lake- Category 4C.

IMPAIRMENT SOURCE: NPS - Agriculture / Wildlife, Natural / Stratification

Recreational Use

The source of the fecal coliform bacteria is primarily due to agricultural nonpoint source runoff. A wildlife component does contribute to the impairment as well.

Aquatic Life Use

Bottom dissolved oxygen depletion occurs naturally in reservoirs due to stratification.

Informational note: Smith Mountain Lake is designated by Virginia's Water Quality Standards as a Nutrient Enriched Water (9 VAC 25-260-350 A.1.; NEW-1). The Water Quality Management Planning (WQMP) Regulation also lists Smith Mountain Lake as water quality limited for phosphorus (9 VAC 25-720-80 B. Segment classification).

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Bedford
STREAM NAME: Big Otter River, Sheeps Creek
HYDROLOGIC UNIT: 03010101
TMDL ID: VAW-L23R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 17.49 - Miles
INITIAL LISTING: 1996
TMDL SCHEDULE: 2001
UPSTREAM LIMIT:

DESCRIPTION: Off Rt. 614 near Reba

RIVER MILE: 7.92

LATITUDE: 37.42833

LONGITUDE: -79.64769

DOWNSTREAM LIMIT:

DESCRIPTION: Confluence of North Otter Cr. on Big Otter R.

RIVER MILE: 0.00

LATITUDE: 37.38457

LONGITUDE: -79.44433

The upper limit is north of Reba, Va on Campbells Mountain off Rt. 614 (Montvale Quad). The original downstream end was ~0.25 miles west of the Rt. 43 Bridge where Sheeps Creek and Stoney Creek join to form the Big Otter River (Peaks of Otter Quad 37°23'25" / 79°33'21"). The 2004 ending of the segment is at the mouth of North Otter Creek on the Big Otter River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Bacteria

Recreational Use

The Sheep Creek Bacteria Total Maximum Daily Load (TMDL) Study with allocations is complete. The segment is therefore Category 4A for bacteria with the US Environmental Protection Agency (EPA) approval of the study and allocations on 02/02/2001. The entirety of the approved study and allocations can be viewed at <http://www.deq.state.va.us>.

The original Sheeps Creek 303(d) Listing for fecal coliform bacteria in 1996 and again in 1998 (7.92 miles) is based on ambient data collections showing contravention of the former 1000 cfu/100 ml fecal coliform bacteria standard in greater than 25 percent of the samples collected. The segment although delisted (Category 4A) with the US EPA TMDL Study and allocation approval remains impaired for the recreational use and is expanded to include the Big Otter River. The 2004 expansion adds an additional 9.47 miles to the impaired waters listing to include the Big Otter River from river mile 41.48 downstream to 32.01.

The segment brackets stations 4ASEE003.16 (at Rt. 680 Bridge, Bedford Co.) and 4ABOR041.27 (at the intersection of Routes 43 and 682). Ten of 27 observations exceed the current 400 cfu/100 ml fecal coliform bacteria criterion at 4ASEE003.16. The exceedance range is from 500 cfu/100 ml to greater than 8000. Big Otter River station 4ABOR041.27 finds two of two observations in excess of the 400 cfu/100 ml instantaneous criterion. Exceeding values are 1400 and 6400 cfu/100 ml. The segment does not support the recreational use.

IMPAIRMENT SOURCE: NPS - Agriculture (Pasture & Grazing) / Wildlife

Recreational Use

Agricultural and wildlife nonpoint source direct deposition are the primary sources of fecal coliform bacteria as determined by the TMDL Study in critical conditions.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Bedford
STREAM NAME: Big Otter River, Elk Creek and North Otter Creek
HYDROLOGIC UNIT: 03010101
TMDL ID: VAW-L25R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 37.48 - Miles
INITIAL LISTING: 1998
TMDL SCHEDULE: 2001
UPSTREAM LIMIT:

DESCRIPTION: Near the Route 639 crossing (North Otter Cr.).

RIVER MILE: NA

LATITUDE: 37.45343

LONGITUDE: -79.46548

DOWNSTREAM LIMIT:

DESCRIPTION: Little Otter R. mouth on the Big Otter R.

RIVER MILE: NA

LATITUDE: 37.27444

LONGITUDE: -79.40525

The original (1998) segment Elk Creek (Forest Quad) has been expanded in 2004 to include the lower portion of North Otter Creek and the Big Otter River. The segment expansion begins on North Otter Creek (Sedalia Quad) from near the Route 639 crossing extending downstream to the Little Otter River mouth on the Big Otter River (Goode Quad). The segment encompasses the original (7.28 miles) and 2004 expansion of the 1998 Elk Creek segment. A total of 30.20 miles are in addition to the original 7.28 miles.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Bacteria

Recreational Use

The Elk Creek / Big Otter River Bacteria Total Maximum Daily Load (TMDL) Study and allocation scenario is complete. The segment is therefore Category 4A for bacteria with the US Environmental Protection Agency (EPA) approval of the study and allocations on 02/02/2001. The entirety of the approved study and allocations can be viewed at <http://www.deq.state.va.us>.

An expansion of the original listed Elk Creek bacteria segment is the result of additional data collections made while conducting the TMDL Study. The bacteria impairments are covered by the 02/02/2001 approved TMDL Study and allocations. The original and 2004 extensions totaling 37.48 miles are described below:

Elk Creek (VAW-L25R 1998 original Listed segment- 7.28 miles; 2004 expansion 11.88 miles). Total miles 19.16.

The original (1998) upper limit of the segment is near Rt. 643 west of Forest (Forest Quad 37°20'25" / 79°21'33") river mile 7.28 on Elk Creek. The 2004 segment now extends from near the Route 644 crossing at Perrowville (37°24'58" / 79°21'07") river mile 19.16 at unnamed tributary with the segment ending at the Elk Creek mouth on the Big Otter River (Goode Quad 37°18'37" / 79°23'38") river mile 0.00. The original 1998 and 2002 303(d) Listing basis is for fecal coliform bacteria ambient data collections at 4AECR003.02. These data show contravention of the former WQS 1000 cfu/100 ml fecal coliform criterion in greater than 25 percent of the samples collected.

Fecal coliform bacteria excursions of the current 400 cfu/100 ml continue to cause nonsupport of the recreational use. The segment brackets station 4AECR003.02 located at the Rt. 668 Bridge. Eight of 20 samples exceed the 400 cfu/100 ml instantaneous criterion with exceeding values ranging from 500 cfu/100 ml to greater than 160,000.

Fact Sheets for Category 4 Waters

Station 4AECR007.62 located at the intersection of Routes 643 and 705 records two excursions of the instantaneous fecal coliform bacteria criterion from two samples. The exceeding values are 4600 and 7000 cfu/100 ml. A single fecal coliform collection, although not assessed, at Station 4AECR016.99 at the intersection of Routes 668 and 663 exceeds the instantaneous criterion. The single observation value is 3300 cfu/100 ml.

North Otter Creek (located in watershed VAW-L24R; 2004 expansion) - 6.58 miles.

The 2004 expansion includes the lower portion of North Otter Creek starting on the Sedalia Quad (37°27'12" / 79°27'55") river mile 6.58 from near the Route 639 crossing extending downstream to its mouth on the Big Otter River (Sedalia Quad (37°23'04" / 79°26'40") river mile 0.00.

Station 4ANOT001.06 located on the Route 644 Bridge records 10 of 28 samples in excess of the current 400 cfu/100 ml criterion for fecal coliform bacteria. The range of exceedance is from 500 cfu/100 ml to greater than 8000.

Big Otter River (VAW-L25R; 2004 expansion) - 11.74 miles.

The Big Otter River from the confluence of North Otter Creek (Sedalia Quad 37°27'12" / 79°27'55") river mile 32.01 downstream to the Little Otter River mouth on the Big Otter River (Goode Quad 37°16'28" / 79°24'19") river mile 20.27.

Station 4ABOR024.46 located on the Route 460 Bridge near the intersection with 706 finds two of two fecal coliform bacteria samples exceed the 400 cfu/100 ml instantaneous criterion. Exceeding values are 7000 cfu/100 ml and greater than 160,000.

Station 4ABOR029.74 also finds two of two fecal coliform bacteria samples exceed the instantaneous criterion. Exceeding values are 2100 and 4900 cfu/100 ml. The station is located on the Route 221 Bridge near the intersection of Route 670.

Aquatic Life Use

A 7.28 mile 'Water of Concern' on Elk Creek is due to total phosphorus screening value exceedances. These exceedances result in an 'Observed Effect' in these waters. Two total phosphorus samples exceed the 0.20 mg/l screening value from 19 samples. Each exceedance is 0.30 mg/l occurring in April 2000 and 0.60 mg/l in May 2001. The segment brackets station 4AECR003.02 in Bedford County.

IMPAIRMENT SOURCE: NPS - Agriculture / Wildlife

Recreational Use

Agricultural and wildlife nonpoint source direct deposition are the primary sources of fecal coliform bacteria as determined by the TMDL Study at critical conditions. The upper portion of the watershed is experiencing population growth/urbanization in the Forest Area.

Aquatic Life Use

The source of total phosphorus is believed to be from agricultural nonpoint source runoff.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Bedford
STREAM NAME: Machine Creek
HYDROLOGIC UNIT: 03010101
TMDL ID: VAW-L26R-03
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 11.33 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2001

UPSTREAM LIMIT:

DESCRIPTION: Intersection of Rts. 24 & 732
RIVER MILE: 11.33
LATITUDE: 37.22444 **LONGITUDE:** -79.49509

DOWNSTREAM LIMIT:

DESCRIPTION: Machine Cr. mouth on Little Otter R
RIVER MILE: 0.00
LATITUDE: 37.28250 **LONGITUDE:** -79.44021

The segment begins upstream near the intersection of Routes 24 and 732 on the Huddleston Quad, and extend to Machine Creek's mouth on the Little Otter River.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Bacteria

Recreational Use

The Little Otter River fecal coliform bacteria Total Maximum Daily Load (TMDL) Study and allocation scenario is complete. Machine Creek is tributary to the Little Otter River and is included in the TMDL Study. The segment is therefore Category 4A for bacteria with the US Environmental Protection Agency (EPA) approval of the study on 02/02/2001. The entirety of the approved study and allocations can be viewed at <http://www.deq.state.va.us>.

The 1996/1998/2002 303(d) Listing basis for fecal coliform bacteria are ambient collections showing contravention of the former 1000 n/100 ml fecal coliform criterion in greater than 10 and 25 percent of the samples collected. The segment, although delisted with the US EPA TMDL Study approval, remains impaired for the recreational use. 2004 Assessment results are described below.

Fecal coliform bacteria again cause failure of the segment to meet the recreational use due to contravention of the current 400 cfu/100 ml instantaneous criterion. The segment brackets ambient station at 4AMCR004.60 (Rt. 804 Bridge) where six of 16 samples exceed the instantaneous criterion. The range of exceedance is from 700 to 1100 cfu/100 ml.

IMPAIRMENT SOURCE: NPS - Agriculture / Wildlife

Recreational Use

The TMDL Study identifies the primary source of the impairment as agricultural nonpoint sources from direct deposition by cattle and pasture land runoff. Wildlife are also noted as contributing to the impairment.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Bedford, Campbell
STREAM NAME: Big Otter River, Falling Creek
HYDROLOGIC UNIT: 03010101
TMDL ID: VAW-L27R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 11.12 - Miles
INITIAL LISTING: 1998 **TMDL SCHEDULE:** 2001
UPSTREAM LIMIT:

DESCRIPTION: Little Otter R. mouth on Big Otter R.

RIVER MILE: 19.37

LATITUDE: 37.27444

LONGITUDE: -79.40525

DOWNSTREAM LIMIT:

DESCRIPTION: Buffalo Cr. mouth on the Big Otter R.

RIVER MILE: 13.98

LATITUDE: 37.23528

LONGITUDE: -79.32663

The segment begins at the mouth of the Little Otter River on the Big Otter River extending downstream to the confluence of Buffalo Creek with the Big Otter River. The segment spans the Goode, Forest and Lynch Station Quads.

Note: The Big Otter River 2002 expansion of 5.39 miles is again increased in 2004 to include Falling Creek, 5.73 miles. The total mileage for the expanded 2004 segment is 11.12 miles.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Bacteria (2002 addition)

Recreational Use

The Big Otter River Bacteria Total Maximum Daily Load (TMDL) Study and allocation scenario is complete. The TMDL study encompasses the drainage in watershed VAW-L27R. No recreational use impairments were noted in the 1998 303(d) List for the Big Otter River in watershed VAW-L27R. The segment is therefore Category 4A with the US Environmental Protection Agency (EPA) approval of the study on 02/02/2001. The 2002 5.39 mile fecal coliform portion is added to the original 1998 303(d) Listing (13.98 miles) for a total of 19.37 miles for the Big Otter River. The entire Big Otter impaired segment spans from the mouth of Little Otter River on the Big Otter on downstream to the Big Otter River confluence with the Staunton (Roanoke) River (VAC-L28R). The 2004 Assessment adds Falling Creek with 5.73 miles to the overall impairment in VAW-L27R for a total of 11.12 miles. The entirety of the approved study and allocations can be viewed at <http://www.deq.state.va.us>. 2004 Assessment data are below.

Big Otter River

Exceedances of the fecal coliform bacteria instantaneous criterion of 400 cfu/100 ml are found at station 4ABOR016.26 (Rt. 24 Bridge). Three of 17 samples exceed. The range of exceedance is from 500 cfu/100 ml to greater than 160,000. The segment does not support the recreational use and is a 2002 addition.

Falling Creek (2004 Addition)- 5.73 miles

The Falling Creek recreational use mainstem impairment extends from its headwaters (37°12'47" / 79°27'14") at river mile 5.73 downstream to its confluence with the Big Otter River (37°16'07" / 79°23'53") at river mile 0.00. The impaired waters span the Huddleston and Goode Quads.

Fact Sheets for Category 4 Waters

Station 4AFNG001.06 located on the Route 714 Bridge reports two of two fecal coliform bacteria samples in excess of the instantaneous criterion. Each exceedance is 24,000 and greater than 160,000 cfu/100 ml.

Fish Consumption Use

The waters are a 'Water of Concern' based on 1999 fish tissue collections at 4ABOR012.18 (VAC-L28R) found polychlorinated biphenyls (PCBs) in excess of the human health-risk carcinogenic screening value (SV) of 54 parts per billion (ppb) in one species; Redhorse Sucker at 61 ppb. This results in an 'Observed Effect' noted in the 2004 Assessment. Other sampled species record PCBs in Redbreast Sunfish at 4 and Roanoke Hogsucker at 0.64 ppb both below the TV. The waters are fully supporting, but threatened for a total of 19.37 miles.

IMPAIRMENT SOURCE: NPS - Agriculture / Wildlife

Recreational Use

The source of fecal coliform bacteria is believed to be agricultural nonpoint source runoff from upstream watersheds primarily direct deposition from cattle and pasture land runoff. Wildlife contributions are also noted in the TMDL Study.

Fish Consumption Use

The exact source(s) of PCB contamination are unknown.

The Virginia Department of Health (VDH) action level for PCBs is 600 ppb in fish tissue. PCBs are a group of man-made industrial chemicals that exist as a mixture and may contain up to 209 individual compounds. Since 1977, PCBs have not been produced in the U.S., but are still found in the environment. PCBs were once widely used as coolants and lubricants in transformers, capacitors and other electrical equipment.

Fact Sheets for Category 4 Waters

RIVER BASIN: Roanoke/Yadkin River Basins
CITY/COUNTY: Franklin, Henry, Patrick
STREAM NAME: Smith River - Philpott Reservoir
HYDROLOGIC UNIT: 03010103
TMDL ID: VAW-L51L-01N
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 2350 - Acres
INITIAL LISTING: 2002 **TMDL SCHEDULE:** 2014

UPSTREAM LIMIT:

DESCRIPTION: Philpott Reservoir backwaters.
RIVER MILE: 58.94
LATITUDE: 36.84611 **LONGITUDE:** -80.12902

DOWNSTREAM LIMIT:

DESCRIPTION: Philpott Reservoir Dam.
RIVER MILE: 45.25
LATITUDE: 36.78083 **LONGITUDE:** -80.02760

The segment begins at the backwaters of Philpott Reservoir and extends downstream to the Philpott Dam. The entire segment is on the Philpott Reservoir Quad.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen (Bottom)

Stations presented below are denoted with suffixes of 'TL' - Top Layer and 'BL' - Bottom Layer collections. Their locations are: 4ASRE056.06 - Union Church Bridge, 4ASRE052.31 - Horseshoe Point, 4ASRE048.98 - Goose Point and 4ASRE046.90 - Above Philpott Dam.

Aquatic Life Use

Bottom layer: Dissolved oxygen in the bottom layer of the reservoir exceeds the 4.0 mg/l minimum criterion for Class IV waters. Exceedances occur in the late spring, summer and early fall. Dissolved oxygen depletion below the thermocline is a natural occurrence in reservoirs. Water Quality Standards do not specifically address the maintenance of dissolved oxygen levels (stratification) in a reservoir bottom layer. The minimum criterion, based on Class of water, applies to all waters in the Commonwealth. 4ASRE056.06-BL reports 43 excursions from 75 measurements, 4ASRE052.31-BL 33 of 186, 4ASRE048.98-BL 19 of 224 (Fully Supporting) and 4ASRE046.90-BL exceeds the minimum in 13 of 188 (Fully Supporting). The waters do not support the aquatic life use based on the existing Class IV dissolved oxygen minimum criterion and the natural depletion of oxygen at depth in reservoirs. The 2002 dissolved oxygen impairment remains.

The Carlson Trophic State Index (TSI) is used to determine the cause of the dissolved oxygen impairment eg. natural or anthropogenic in nature. The following are the index scores from four stations where CA = chlorophyll (a), TP = total phosphorus and SD = seecchi disk (transparency).

Smith River
4ASRE056.06-TL CA [40.31] TP [46.89] SD [48.28].
4ASRE052.31-TL CA [33.64] TP [41.22] SD [46.13].
4ASRE048.98-TL CA [34.19] TP [40.15] SD [45.74].
4ASRE046.90-TL CA [33.74] TP [51.37] SD [42.71].

Fact Sheets for Category 4 Waters

TSI scores below 60 indicate a natural aging process in the reservoir while above 60 indicates man's activities on the land may be influencing the natural aging of the reservoir. The data above, primarily SD, indicates a natural aging process for Philpott Lake- Category 4C.

The waters are a 'Water of Concern' due to excursions of the sediment Consensus Based Probable Effects Concentration (PEC) [MacDonald et al., 2000] screening values (SV) for nickel (Ni) SV of 48.6 parts per million (ppm) and arsenic (As) SV of 33 ppm. Stations 4ASRE056.06 and 4ASRE052.31 each record respectively 52.7 and 52.3 ppm for nickel. Station 4ASRE046.90 reports 49 ppm for arsenic.

IMPAIRMENT SOURCE: Natural / Stratification

Aquatic Life Use

Bottom dissolved oxygen depletion occurs naturally in reservoirs due to stratification.

The source of the sediment nickel and arsenic contamination is unknown.

Fact Sheets for Category 4 Waters

RIVER BASIN: Chowan River and Dismal Swamp Basins
CITY/COUNTY: Brunswick
STREAM NAME: Great Creek Reservoir
HYDROLOGIC UNIT: 03010204
TMDL ID: VAP-K06L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 305 - Acres
INITIAL LISTING: 2004
TMDL SCHEDULE: 2016
UPSTREAM LIMIT:

DESCRIPTION: Extent of backwater

RIVER MILE:

LATITUDE:

LONGITUDE:

DOWNSTREAM LIMIT:

DESCRIPTION: Dam

RIVER MILE:

LATITUDE:

LONGITUDE:

Great Creek Reservoir

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

Dissolved oxygen violations in bottom waters during stratification. The Trophic State Indices were less than 60, therefore the reservoir is considered impaired due to stratification and does not require a TMDL.

IMPAIRMENT SOURCE: Natural Stratification

Natural consequence of stratification.

Fact Sheets for Category 4 Waters

RIVER BASIN: Chowan River and Dismal Swamp Basins
CITY/COUNTY: Emporia, Greenville
STREAM NAME: Emporia Reservoir
HYDROLOGIC UNIT: 03010204
TMDL ID: VAP-K08L-01
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 210 - Acres
INITIAL LISTING: 2004
TMDL SCHEDULE: 2016
UPSTREAM LIMIT:

DESCRIPTION: Extent of backwater

RIVER MILE:

LATITUDE:

LONGITUDE:

DOWNSTREAM LIMIT:

DESCRIPTION: Dam

RIVER MILE:

LATITUDE:

LONGITUDE:

Emporia Reservoir

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: Dissolved Oxygen

Dissolved oxygen violations in bottom waters during stratification. The phosphorus and chlorophyll Trophic State Indices were less than 60. The secchi TSI was considerably larger than the others, therefore it is believed that the high Secchi TSI is a result of a prevalence of inorganic matter and is not considered. The reservoir is considered impaired due to stratification and does not require a TMDL.

IMPAIRMENT SOURCE: Natural Stratification

Natural consequence of stratification.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Washington
STREAM NAME: Cedar Creek
HYDROLOGIC UNIT: 06010102
TMDL ID: VAS-O05R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 9.97 - Miles
INITIAL LISTING: 1994 **TMDL SCHEDULE:** 2004
UPSTREAM LIMIT:

DESCRIPTION: headwaters

RIVER MILE: 5.24

LATITUDE: 36.76667

LONGITUDE: -81.86444

DOWNSTREAM LIMIT:

DESCRIPTION: Middle Fork Holston confluence

RIVER MILE: 0.00

LATITUDE: 36.71444

LONGITUDE: -81.83083

The segment includes the mainstem of the stream from its headwaters to the confluence with Middle Fork Holston River as well as Right Fork and Left Fork of Cedar Creek. Cedar Creek flows through Meadowview.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, Recreation Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic), Total Fecal Coliform

A biological monitoring station, 6CCED000.04, is rated slightly impaired based on two samples, one moderately impaired in March 2001 and one slightly impaired in July 2002. An ambient water quality monitoring station, 6CCED000.14, had 32 bacteria violations in 39 samples. Implementation of the fecal TMDL has been on going for the past two years and the draft benthic TMDL was submitted to EPA in late 2003.

IMPAIRMENT SOURCE: NPS - Urban, NPS - Agriculture

There is a fecal coliform implementation plan in place for reductions of septic tank inputs and agricultural runoff. Some of the corrective actions recommended in the Bacteria Implementation Plan should also address the sources of sediments. Sediments were identified as the source of benthic impairment.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Washington
STREAM NAME: Hutton Creek
HYDROLOGIC UNIT: 06010102
TMDL ID: VAS-O05R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 10.89 - Miles
INITIAL LISTING: 1994
TMDL SCHEDULE: 2004
UPSTREAM LIMIT:

DESCRIPTION: headwaters

RIVER MILE: 4.79

LATITUDE: 36.81722

LONGITUDE: -81.77639

DOWNSTREAM LIMIT:

DESCRIPTION: Middle Fork Holston confluence

RIVER MILE: 0.00

LATITUDE: 36.77000

LONGITUDE: -81.73194

Hutton Creek, from its headwaters to its confluence with Middle Fork Holston River, has been designated a TMDL segment. Plum Creek, and other tributaries to Hutton Creek are also included in this TMDL designation.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, Recreation Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic), Total Fecal Coliform

An ambient water quality monitoring station at 6CHTO000.24 has 36 out of 41 samples violating the bacteria standard. A biological monitoring station at 6CHTO000.07 was ranked slightly impaired July 2002.

IMPAIRMENT SOURCE: NPS - Agriculture, NPS - Agriculture

Bacteria source reductions recommended by the Three Creeks Implementation Plan have been made over the last two years under the leadership of the Holston River Soil and Water Conservation District staff. Sediment reductions recommended by the draft Benthic TMDL study may be met with the same corrective actions of the bacteria implementation plan.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Washington
STREAM NAME: Hall Creek
HYDROLOGIC UNIT: 06010102
TMDL ID: VAS-O05R-03
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 10.85 - Miles
INITIAL LISTING: 1994 **TMDL SCHEDULE:** 2004

UPSTREAM LIMIT:

DESCRIPTION: headwaters
RIVER MILE: 5.87
LATITUDE: 36.79611 **LONGITUDE:** -81.82889

DOWNSTREAM LIMIT:

DESCRIPTION: Byers Creek confluence
RIVER MILE: 0.00
LATITUDE: 36.74083 **LONGITUDE:** -81.80139

Hall Creek flows through Emory and confluences with Byers Creek. The TMDL segment includes its entire length from headwaters to its mouth as well as all tributaries.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, Recreation Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic), Total Fecal Coliform

A station in Byers Creek is considered representative of the Hall Creek watershed. An ambient water quality monitoring station at 6CBYS000.23 had 25 bacteria violations of 29 samples and a benthic station at 6CBYS000.08 has been ranked as slightly impaired.

IMPAIRMENT SOURCE: NPS - Agriculture, NPS - Agriculture

The TMDL implementation plan for bacteria has been underway with corrective actions aimed to reduce bacteria for the past 2 years. In 2003 a draft Benthic TMDL study identified sediment as the benthic stressor and recommends reductions of erosion.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Washington
STREAM NAME: Byers Creek
HYDROLOGIC UNIT: 06010102
TMDL ID: VAS-O05R-04
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 0.87 - Miles
INITIAL LISTING: 1994 **TMDL SCHEDULE:** 2004

UPSTREAM LIMIT:

DESCRIPTION: Hall Creek confluence
RIVER MILE: 0.87
LATITUDE: 36.74083 **LONGITUDE:** -81.80139

DOWNSTREAM LIMIT:

DESCRIPTION: Middle Fork Holston confluence
RIVER MILE: 0.00
LATITUDE: 36.73694 **LONGITUDE:** -81.79500

Byers Creek originates at a bend in Hall Creek. It actually appears to be a continuation of Hall Creek and extends for approximately 2 miles before it flows into Middle Fork Holston River. The entire length of the segment and tributaries are included.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting, Recreation Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic), Total Fecal Coliform

A special study in 1997 indicated that the fecal coliform standard is violated. The stream has been listed on 303 (d) reports since 1994 for fecal coliform violations and benthic impairment based on a special study by Mt. Rogers Planning District Commission published in 1991. A fecal coliform TMDL study was submitted and approved by EPA in 2001. The draft benthic TMDL study has been submitted to EPA identifying sediment as the stressor on aquatic organisms. An ambient water quality monitoring station at 6CBYS000.23 had 25 bacteria violations of 29 samples. This section is also a 'Water of Concern' for benthic data at 6CBYS000.08. These results are reported as an 'Observed Effect' in the 2004 Integrated Report.

IMPAIRMENT SOURCE: NPS - Agriculture, NPS - Agriculture

Bacteria source reductions recommended by the Three Creeks Implementation Plan have been made over the last two years under the leadership of the Holston River Soil and Water Conservation District staff. Sediment reductions recommended by the draft Benthic TMDL study may be met with the same corrective actions of the bacteria implementation plan.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Bristol, Washington
STREAM NAME: Little Creek
HYDROLOGIC UNIT: 06010102
TMDL ID: VAS-007R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 4.81 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: headwaters
RIVER MILE: 5.78
LATITUDE: 36.64750 **LONGITUDE:** -82.20028

DOWNSTREAM LIMIT:

DESCRIPTION: Tennessee State line
RIVER MILE: 0.26
LATITUDE: 36.59500 **LONGITUDE:** -82.19028

Little Creek segment consists of the mainstem from its headwaters to the Tennessee State Line. The creek flows through Bristol, Virginia. The milage reduction is based on NHD data layer.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Total Fecal Coliform

Fecal coliform data from Tennessee indicate that the stream violates the water quality standard.

IMPAIRMENT SOURCE: NPS - Agriculture/Urban

The sources are urban and pet contributions based on a TMDL study approved by EPA in 2002.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Russell
STREAM NAME: Dumps Creek
HYDROLOGIC UNIT: 06010205
TMDL ID: VAS-P08R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 3.42 - Miles
INITIAL LISTING: 1994
TMDL SCHEDULE: 2004
UPSTREAM LIMIT:

DESCRIPTION: Hurricane Fork confluence

RIVER MILE: 3.42

LATITUDE: 36.97056

LONGITUDE: -82.19167

DOWNSTREAM LIMIT:

DESCRIPTION: Clinch River confluence

RIVER MILE: 0.00

LATITUDE: 36.93472

LONGITUDE: -82.19722

The Dumps Creek segment extends from the Hurricane Fork confluence to the mouth where Dumps Creek flows to Clinch River in Carbo.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

The biological monitoring stations, 6BDUM000.14 and 6BDUM001.09 are moderately impaired.

IMPAIRMENT SOURCE: Resource Extraction

The area has a history of coal mining activities which contribute to aquatic habitat impacts on this segment. A draft TMDL report attributes sedimentation to the benthic impairment.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Wise
STREAM NAME: Guest River
HYDROLOGIC UNIT: 06010205
TMDL ID: VAS-P11R-01
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 8.93 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2004

UPSTREAM LIMIT:

DESCRIPTION: Guest River headwaters
RIVER MILE: 34.75
LATITUDE: 37.05139 **LONGITUDE:** -82.67278

DOWNSTREAM LIMIT:

DESCRIPTION: Sepulcher Creek confluence
RIVER MILE: 25.82
LATITUDE: 36.97528 **LONGITUDE:** -82.61722

The headwaters to the Guest River begin on the Flat Gap Quad northwest of Norton on the southern slopes of Indian Mountain. The River flows to the southeast to Sepulcher Creek north of the Town of Norton.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

The biological monitoring assessments, 6BGUE006.5, indicate the segment is moderately impaired. Although this data is over 5 years old, there is no later data to change the TMDL listing.

IMPAIRMENT SOURCE: Resource Extraction

The source for this is unknown. Land uses in this watershed include forestry and dense populations settled on the banks of the river as well as a prevalent coal mining and coal processing industry within the watershed.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Norton, Wise
STREAM NAME: Guest River
HYDROLOGIC UNIT: 06010205
TMDL ID: VAS-P11R-02
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 18.72 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2004

UPSTREAM LIMIT:

DESCRIPTION: Sepulcher Creek confluence
RIVER MILE: 25.82
LATITUDE: 36.97528 **LONGITUDE:** -82.61722

DOWNSTREAM LIMIT:

DESCRIPTION: Bad Branch confluence
RIVER MILE: 7.10
LATITUDE: 36.91139 **LONGITUDE:** -82.43611

The segment includes the mainstem of Guest River from its confluence with Sepulcher Creek to the confluence with Bad Branch. This segment flows through the town of Coeburn. The tributaries that were associated with the 1998 TMDL have been listed separately for clarity.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

Samples taken by TVA in 1996 and 1997 indicate that Guest River and many of its tributaries violate the water quality standards for fecal coliform. A biological monitoring station on Guest River, 6BGUE006.5 has data older than 5 years which also indicates benthic impairments.

IMPAIRMENT SOURCE: NPS - Urban

Guest River is densely settled along streambanks. The DEQ has helped fund construction of a regional sewage treatment plant, Coeburn Norton Wise STP. This has improved sewage treatment for the three towns however, inflow and infiltration in collector lines has not been completely corrected and there are many small communities which do not have public sewer. Elimination of failing septic systems and correction of inflow/infiltration problems are projects that are continuing to be pursued in the watershed.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Wise
STREAM NAME: Crab Orchard Creek
HYDROLOGIC UNIT: 06010205
TMDL ID: VAS-P11R-05
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 2.43 - Miles
INITIAL LISTING: 1998
TMDL SCHEDULE: 2004
UPSTREAM LIMIT:

DESCRIPTION: Headwater

RIVER MILE: 2.43

LATITUDE: 36.93778

LONGITUDE: -82.42167

DOWNSTREAM LIMIT:

DESCRIPTION: Guest River confluence

RIVER MILE: 0.00

LATITUDE: 36.91139

LONGITUDE: -82.43611

The segment includes the entire length of Crab Orchard Creek. It flows in a southwest direction, through the community of Crab Orchard.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Total Fecal Coliform

Samples taken by TVA in 1996 and 1997 indicate that Crab Orchard Creek violates the water quality standards for fecal coliform.

IMPAIRMENT SOURCE: NPS - Urban

Urban septage disposal is suspected as the source for fecal violations, however more research is necessary to confirm the problems on this stream. This stream was included in the Guest River TMDL segment in 1998.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Wise
STREAM NAME: Little Toms Creek
HYDROLOGIC UNIT: 06010205
TMDL ID: VAS-P11R-06
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 4.37 - Miles
INITIAL LISTING: 1998
TMDL SCHEDULE: 2004
UPSTREAM LIMIT:

DESCRIPTION: headwaters

RIVER MILE: 4.37

LATITUDE: 36.96722

LONGITUDE: -82.40694

DOWNSTREAM LIMIT:

DESCRIPTION: Toms Creek confluence

RIVER MILE: 0.00

LATITUDE: 36.94250

LONGITUDE: -82.46722

The entire mainstem length of Little Toms Creek is included in the segment. This stream flows north from Banner on Route 58 to the confluence with Toms Creek. Included in the 1998 TMDL for Guest River and tributaries.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Total Fecal Coliform

Samples taken by TVA in 1996 and 1997 indicate that Guest River and many of its tributaries violate the water quality standards for fecal coliform. A bacteria source tracking study conducted in 2003 is underway to develop a TMDL for bacteria for this watershed.

IMPAIRMENT SOURCE: NPS - Urban

There are many communities and houses along the stream. The DEQ has helped fund construction of a regional sewage treatment plant, Coeburn Norton Wise STP. This has improved sewage treatment for the three towns however, inflow and infiltration in collector lines has not been completely corrected and there are many small but densely populated communities which do not have public sewer. Elimination of failing septic systems and correction of inflow/infiltration problems are projects that are continuing to be pursued in the watershed.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Wise
STREAM NAME: Sepulcher Creek
HYDROLOGIC UNIT: 06010205
TMDL ID: VAS-P11R-07
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 2.6 - Miles
INITIAL LISTING: 1998 **TMDL SCHEDULE:** 2004

UPSTREAM LIMIT:

DESCRIPTION: headwaters
RIVER MILE: 2.60
LATITUDE: 37.00000 **LONGITUDE:** -82.59194

DOWNSTREAM LIMIT:

DESCRIPTION: Guest River confluence
RIVER MILE: 0.00
LATITUDE: 36.97528 **LONGITUDE:** -82.61722

Sepulcher Creek confluences with Guest River near the community of Addington. Sepulcher Creek flows through the communities of Glamorgan and Stephens along Route 625. This segment was included in the Guest River TMDL segment in 1998.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Total Fecal Coliform

Samples taken by TVA in 1996 and 1997 indicate that this stream violates the water quality standards for fecal coliform. A bacteria source tracking study for TMDL development is underway in 2003.

IMPAIRMENT SOURCE: NPS - Urban

The population is dense along the stream banks so that Urban Nonpoint sources are suspected as the reason for the high fecal coliform counts. Elimination of failing septic systems and correction of inflow/infiltration problems are projects that are continuing to be pursued in the Guest River watershed.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Wise
STREAM NAME: Toms Creek
HYDROLOGIC UNIT: 06010205
TMDL ID: VAS-P11R-08
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 11.61 - Miles
INITIAL LISTING: 1998
TMDL SCHEDULE: 2004
UPSTREAM LIMIT:

DESCRIPTION: Headwaters

RIVER MILE: 11.61

LATITUDE: 36.96222

LONGITUDE: -82.36806

DOWNSTREAM LIMIT:

DESCRIPTION: Guest River confluence

RIVER MILE: 0.00

LATITUDE: 36.93667

LONGITUDE: -82.47583

The fecal segment includes the mainstem of Toms Creek from headwaters near Meade Chapel to Guest River confluence in Coeburn. Route 72 and Route 652 follow this stream through the communities of Bondtown and Toms Creek. This segment was included in the 1998 Guest River TMDL.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Total Fecal Coliform

Samples taken by TVA in 1996 and 1997 indicate that Toms Creek violates the water quality standard for fecal coliform. A bacteria source tracking study in 2003 is underway to determine the sources of bacteria in the watershed.

IMPAIRMENT SOURCE: NPS - Urban

There are many communities and houses along the stream. Although a regional sewage treatment plant, Coeburn Norton Wise STP, has improved sewage treatment for the three towns, inflow and infiltration has not been completely corrected and there are still unsewered communities. Elimination of failing septic systems and correction of inflow/infiltration problems are projects that are continuing to be pursued in the watershed.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Wise
STREAM NAME: Black Creek and tributaries
HYDROLOGIC UNIT: 06010206
TMDL ID: VAS-P17R-03
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 4.21 - Miles
INITIAL LISTING: 1996
TMDL SCHEDULE: 2004
UPSTREAM LIMIT:

DESCRIPTION: Black Creek impoundment

RIVER MILE: 4.21

LATITUDE: 36.97917

LONGITUDE: -82.68000

DOWNSTREAM LIMIT:

DESCRIPTION: Powell River confluence

RIVER MILE: 0.00

LATITUDE: 36.92778

LONGITUDE: -82.69056

The Black Creek TMDL segment is above Blackwood community, west of the Town of Norton between Black Creek Ridge and White Oak Gap. This segment extends from the lake impoundment to its confluence with Powell River near Route 58/23. The segment length should include tributaries total mileage which are not reflected due to NHD deficiencies.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

Based on a special study funded by DMME, the stream benthic community was impaired. Further benthic sampling during the TMDL study in 2002 was done to confirm the impairment.

IMPAIRMENT SOURCE: Acid Mine Drainage

This watershed is the location of a re-mining project on an abandoned mine land site. The new mining NPDES permit addresses some of the acid mine drainage seeps by specifying better management practices. A draft TMDL study will be submitted to EPA in 2003.

Fact Sheets for Category 4 Waters

RIVER BASIN: Tennessee/Big Sandy River Basins
CITY/COUNTY: Lee
STREAM NAME: Poor Valley Creek
HYDROLOGIC UNIT: 06010206
TMDL ID: VAS-P19R-02
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 2.67 - Miles
INITIAL LISTING: 2004 **TMDL SCHEDULE:** 2016

UPSTREAM LIMIT:

DESCRIPTION: Headwaters
RIVER MILE: 2.67
LATITUDE: 36.79130 **LONGITUDE:** -82.96370

DOWNSTREAM LIMIT:

DESCRIPTION: Powell River confluence
RIVER MILE: 0.00
LATITUDE: 36.79480 **LONGITUDE:** -82.92010

Poor Valley Creek from its headwaters to confluence with Powell River is included. The stream is above Dryden and flows parallel to Route 621.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic)

There is a U.S.Forest Service biological monitoring station 9120 on Poor Valley Creek with impaired ratings.

IMPAIRMENT SOURCE: Drought

The source is unknown

Fact Sheets for Category 4 Waters

RIVER BASIN: New River Basin
CITY/COUNTY: Giles
STREAM NAME: Standrock Branch
HYDROLOGIC UNIT: 05050002
TMDL ID: VAS-N26R-02
ASSESSMENT CATEGORY: 4C
SEGMENT SIZE: 1.14 - Miles
INITIAL LISTING: 2004 **TMDL SCHEDULE:** 2016

UPSTREAM LIMIT:

DESCRIPTION: End of Public Water Supply Segment
RIVER MILE: 1.14
LATITUDE: 37.20820 **LONGITUDE:** -80.89330

DOWNSTREAM LIMIT:

DESCRIPTION: Dismal Creek
RIVER MILE: 0.00
LATITUDE: 37.19300 **LONGITUDE:** -80.88990

This segment is in the Jefferson National Forest and flows into Dismal Creek just upstream of the Falls of Dismal. A jeep trail parallels its streambed.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT CAUSE: General Standard (Benthic

A biological station (#8096) reported by the Forest Service rates the stream moderately impaired.

IMPAIRMENT SOURCE: Unknown

The source is unknown. Land on this stream is in the National Forest.

Fact Sheets for Category 4 Waters

RIVER BASIN: New River Basin
CITY/COUNTY: Montgomery
STREAM NAME: Mill Creek
HYDROLOGIC UNIT: 05050001
TMDL ID: VAW-N21R-03
ASSESSMENT CATEGORY: 4A
SEGMENT SIZE: 15.27 - Miles
INITIAL LISTING: 1996 **TMDL SCHEDULE:** 2002

UPSTREAM LIMIT:

DESCRIPTION: Mill Cr. headwaters.
RIVER MILE: 15.27
LATITUDE: 37.04361 **LONGITUDE:** -80.41386

DOWNSTREAM LIMIT:

DESCRIPTION: Mill Cr. mouth on Meadow Cr.
RIVER MILE: 0.00
LATITUDE: 37.07083 **LONGITUDE:** -80.50862

The segment begins at the headwaters of Mill Creek on the Riner Quad and extends downstream to the Mill Creek confluence with Meadow Creek at the Rt. 600 Bridge on the Radford South Quad (7.04 miles).

CLEAN WATER ACT GOAL AND USE SUPPORT:

Recreation Use - Not Supporting

IMPAIRMENT CAUSE: Bacteria

Recreational Use

The Mill Creek drainage bacteria Total Maximum Daily Load (TMDL) Study and allocations is complete with the U.S. Environmental Protection Agency approval on June 5, 2002. Additional bacteria sampling above and below the 1998 303(d) Impaired segment increased the original 1998 segment size of 5.60 miles by 9.67 miles in 2002. The 2002 / 2004 segment now extends to the headwaters of Mill Creek (7.04 miles). 2002 tributary additions include Poplar Branch (4.58 miles) and two unnamed tributaries (XDE 1.73 miles and XDF 1.92 miles).

Fecal coliform bacteria exceedances of both the 400 cfu/100 ml instantaneous and geometric mean 200 cfu/100 ml criteria cause the segment to not support the recreational use described below. The segment was originally listed based on the former fecal coliform WQS instantaneous criterion of 1000 cfu/100 ml and 200 geometric mean. Listed below are the monitored sites showing fecal coliform instantaneous excursions / with total sample collections; (maximum) and geometric mean calculation exceedances / with total calculations where applicable. Instantaneous Escherichia coli (E. coli) single observations are listed next (value). Each exceed the WQS criterion of 235 cfu/100 ml. Data below reflect the 2004 Cycle data window. Two ambient fixed sites 9-MLC005.44 and 9-MLC001.53 are included with the non-fixed sites below.

9-MLC000.17 Rt. 600 Bridge - 3/5; (3900); 1/1 geomean; E. coli- 1/1 (800).
9-MLC001.31 Rt. 693 Bridge - 3/5; (2300); 1/1 geomean; E. coli- 1/1 (800).
9-MLC001.53 Rt. 693, Childress- 3/6; (2300).
9-MLC002.74 Rt. 669 Bridge- 4/5; (>8000); 1/1 geomean; E. coli- 1/1 (800).
9-MLC005.44 Rt. 8 Bridge-above Riner STP- 18/25; (2500); E. coli- 1/1 (800).
9-MLC006.00 Private road Rt. 616- 2/5; (>8000); 0/1 geomean; E. coli- 1/1 (>800).
9-PPL000.01 Private Road at mouth.- 1/1; (>8000).
9-PPL001.27 Rt. 616 Bridge- 2/2 (2800).
9-XDE000.95 Rt. 678 Bridge- 4/5; (>8000); 1/1 geomean; E. coli- 1/1 (>800).

Fact Sheets for Category 4 Waters

9-XDF000.11 Private road Rt. 669- 4/5;(2600); 1/1 geomean; E. coli- 1/1 (>800).

IMPAIRMENT SOURCE: NPS - Agriculture / Wildlife / Domestic Septage

Recreational Use

The source is a mix of nonpoint source runoff from agricultural activity, wildlife and domestic septage.